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LECTURE I.

My immediate predecessor in this honourable office permitted himself a brief divagation into the history of the Lumleian lectureship, and brought back for our delectation a very interesting account of its founders. In this account he alluded to a fact which none of us can ever forget; that William Harvey filled this office for over 40 years, and that it was almost certainly in the exercise of its functions that he first proclaimed his views on the circulation of the blood. Whether this is so or not, his influence can be traced throughout the tenure of this lectureship. When its conditions were reconstituted, just over a hundred years ago, its first holder was Peter Mere Latham, who spoke "On Some Diseases of the Heart"; and its second John Elliottson who, though he is unhappily bettter remembered for his adventures in mesmerism, addressed the College "On the recent improvements in the Art of Distinguishing the Various Diseases of the Heart," an art in which he excelled, since he was one of the first British physicians to realise the value of the stethoscope. In more recent times the cardiological flavour imparted by the spirit of Harvey to this lectureship may again be discerned in the contributions of Osler, Norman Moore, Mitchell Bruce, De Havilland Hall, Sutherland, and Horder. To all of these, more or less, I am indebted, and of the first and last in particular I may say that to their lectures on "Angina Pectoris" and "Endocarditis" respectively I owe much of what I have to say in my own. To one other source connected with this College I have also to express my deep indebtedness, and that is to its treasurer, Dr. Sidney Phillips; for it is to his lectures at St. Mary's on cardiac disease, including as they did an unforgettable reference to the liability of the cardiosyphilitic to sudden death, that I owe my first interest in the matter.

But apart from personal reasons this subject has a compelling interest which, I think, justifies my choice. At first sight it may seem presumptuous to claim a territory which marches so closely with those surveyed by some of my immediate predecessors. In spite of this, however, it retains its individuality. It is true that it overlaps such areas as those of intrathoracic aneurysm, angina pectoris, endocarditis, and cardiovascular degeneration, all of which have within the past 20 years provided subjects for these lectures. Yet it is itself an entity, if this word can ever be applied to any group of natural phenomena; and since the progress of science has always been characterised by a derivation of causes from a study of effects, this way of looking at diseases as ætiological entities needs no apology. I propose, therefore, to lay before you an account of syphilis of the heart and great vessels, beginning with a brief survey of the development of our knowledge of the subject. This, together with a consideration of the part which syphilis plays as a cause of cardiovascular disease at the present day, will occupy my first lecture. In the second I propose to attempt a clinical portrayal of the disease, and in the third to expose the anatomical background of this picture, with particular reference to its mode of evolution.

Syphilis and Cardiovascular Disease.

In attempting to trace the growth of a belief in the importance of syphilis as a cause of cardiovascular disease, one is struck by the inexplicable delays which have marked several periods of its development. The association of aneurysm with syphilis was recognised almost as soon as syphilis itself became a common disease. To quote from Sir Humphry Rolleston's [45] Tercentenary Harveian Oration, which has laid all students of cardiology under an unlimited obligation:

> "The traumatic and superficial aneurysm was that mainly seen until syphilis became widespread after the return in 1493 of Columbus from the New World and the occupation of Naples by the army of Charles VIII. in 1495; there was then what has been called an unprecedented occurrence of aortic aneurysm. The association with syphilis did not escape Fernelius, who in 1542 first recognised internal aneurysms; Vesalius, who about 1557 diagnosed both thoracic and abdominal aneurysms; and Ambroise Paré (1582), who incriminated mercurial treatment as a cause of aneurysm. The luetic origin of aneurysm, though accepted by Lancisi (1728) and Morgagni (1761), waned; Matthew Baillie did not mention it in 1789 or later; but it was revived on good grounds in the middle of the last century by Crisp (1847), Myers (1871), Welch (1875) in this country, and by many foreign authors."

Now, during the earlier part of last century certain morbid anatomists described examples of another form of cardiac syphilis; a form so striking that it seems for the moment to have overshadowed the less dramatic aortic lesions that Hodgson [29] figured as preceding the formation of aneurysm. It was in 1845 that Ricord [44] described what appears to have been the first example of cardiac gumma, the exact nature of which was recognised; but not many others were added, and Virchow,[55] in a monumental article on the visceral lesions of syphilis published in 1858, brought forward from his own experience only one example of this lesion, occurring in a man of 47. In the preceding year Wilks[58] had described a case of fibroid heart which he attributed to syphilis, so that interest in the myocardial aspects of the disease had been awakened. Meanwhile, Hodgson and others had given some account of lesions of the aortic valves. As early as 1811 Corvisart [16] had attributed some of these to syphilis, but the lesions as he described them seem to have been polypoid growths of the kind seen in what we now call ulcerative or malignant endocarditis. Possibly they were examples of endocarditis of this type engrafted on a syphilitic basis. At all events the possibility of syphilis as a cause of valvular lesions is not even mentioned by Dominic Corrigan[15] in the paper in which, in 1832, he gave so clear an account of what he called "Permanent Patency of the Mouth of the Aorta, or Inadequacy of the Aortic Valves," although he stated clearly the fact that the aortic valves may leak by reason of dilatation of the aorta itself, and two of his figures are obviously those of syphilitic lesions.

This much, then, was recognised by the middle of the last century: the syphilitic origin of many aneurysms of the thoracic aorta; the fact that disease of the aortic wall precedes the development of aneurysm; the occasional determination of

* The Lumleian Lectures, 1930, delivered before the Royal College of Physicians of London.

gummatous and fibrotic processes to the cardiac wall, and the occurrence of insufficiency of the aortic valves.

Thereafter the study of this relation between syphilis and cardiac disease made but slow progress in spite of Clifford Allbutt's [2] and Heubner's [28] discovery of the syphilitic origin of certain peri-arterial lesions, and Welch's [57] emphatic reiteration of the importance of syphilis as a cause of aortic aneurysm in the British Army. Writing in 1876, he blamed syphilis for over 60 per cent. of these, and also described aortic nodulation as present in two-thirds of his post-mortem examinations of men who had had syphilis. In the latter part of the last century, Phillips's [42] paper showed that syphilis had to be reckoned with as a cause of cardiac disease in civil practice also. General recognition of the truth and significance of these doctrines was, however, delayed until the present century, when fresh light shone into this dark corner from two different angles. On the one part the infective nature of syphilis, always suspected on general grounds, was clearly demonstrated by Schaudinn and Hoffmann. This was followed by the discovery of the complement-fixation test and its applicability to the diagnosis of syphilis. These two steps forward were inevitably succeeded by a third, when Ehrlich brought forward his synthetic arsenical preparations for the extinction of the spirochæte. Thus we advanced to a point from which the whole field of activity of the syphilitic virus might be resurveyed, and thus it was that the aortic lesions—their frequency, their nature, and their gravity—came to be revalued. At the same time the study of cardiac disease in its physiological aspects, in its relation to disturbance of function, was awakening new interest in the intracardiac localisation of morbid processes. We cannot too often remind ourselves of the honourable part played by Fellows of this College—Allbutt, Mackenzie, Lewis, Wenckebach, and others—in this advancement of our learning. One immediate and practical outcome was a renewed interest in the distribution of the lesions of syphilis within the heart.

It is not a matter for surprise, therefore, that the past decade should have produced a large number of papers on cardiovascular syphilis. When I first determined upon the choice of that subject I hoped that I should be able to lay before you a critical summary of all this work, but when I tried to do so I was confronted by three principal difficulties. In the first place, many of the points on which I felt doubtful or uncertain did not seem to be noticed at all in this new literature. Secondly, other points proved controversial, one author expressing views diametrically opposed to that of another. Finally, the bulk of the papers was so great and some of them were so inaccessible that I felt obliged to fall back on my own observations in order to secure the necessary data. By way of furnishing a basis for this review of the subject, I have analysed the records of 103 patients with cardiovascular syphilis whom I have seen, both in private and in hospital practice, since the war. That these are all of them authentic cases of syphilitic infection would, I think, be agreed by everyone. In each there was either a history of syphilitic infection or clinical evidence of some other syphilitic lesion, or a positive reaction to the Wassermann test, or the post-mortem appearances characteristic of syphilitic disease of the heart and aorta. These records have not been in any way selected. The only process of selection was in fact a process of rejection; records of 21 other cases were omitted on the ground that the syphilitic nature of their troubles was not incontrovertibly established. I should not, however, venture to base a comprehensive account of any group of lesions on clinical data alone. Accordingly, I enlisted the help of my colleague, Dr. A. L. Taylor, pathologist to the Bristol General Hospital, and I shall refer to figures extracted from our post-mortem records which he has kindly set out for my use; and to a similar series of data for which I am indebted to Dr. E. R. Cullinan, of St. Bartholomew's Hospital. I have also made a microscopical examination of the heart and aorta in 21 cases of cardiovascular syphilis. These experiences have helped me once more to realise how much there is to be said for the plan of conjoining clinical with anatomical examination. It would, I think, be difficult to get as clear a mental picture of this or, indeed, of any other disease by either method of observation alone. On the one hand the resort to histological inquiry has made the clinical phenomena much more intelligible, while on the other hand the clinical observations give a sense of life to the picture which it would lack if it were drawn from anatomical data alone.

THE FREQUENCY OF CARDIOVASCULAR SYPHILIS.

The data which Dr. Taylor extracted from our post-mortem records are arranged to show, first, in what percentage of all autopsies we may expect gross cardiovascular disease; and secondly, what percentage of that disease is syphilitic. In 1750 post-mortem examinations 354, or 20 per cent., showed cardiovascular lesions; and of these 45, or 12·7 per cent.—almost exactly one-eighth—were syphilitic in type. Dr. Cullinan's figures from St. Bartholomew's Hospital were drawn from 1000 consecutive autopsies on cases from the medical wards. Of these, 456 showed gross cardiovascular disease, which was syphilitic in 33 cases, or in 7·2 per cent.

These data may be compared with some other series:—

TABLE I.

Author and city.	Date.	Number of autopsies.	Cardio-vascular syphilis in:
			%
Symmers [51] (New York)	1916	4,880	175 (3·5)
Reid [43] (Boston)	1920	1,678	54 (3·2)
Cowan [16] and Faulds (Glasgow)	1929	1,000	60 (6·0)
Taylor (Bristol)	1919–29	1,750	45 (2·5)
Cullinan (London)	1920–26	1,000	33 (3·3)
Clawson [9] and Bell (Minneapolis)	1910–26	4,577 (Pts. over 20)	126 (2·6)

The proportion of cases of fatal syphilis in which aortic lesions are found differs a good deal according to different observers. I have examined many of these statistics, and propose to accept the estimate offered by two experienced observers working on large aggregates of material: Turnbull,[52] of the London Hospital, who found aortitis in 60 per cent. and aortic valvular disease in 15 per cent., and Symmers,[51] of New York, who noted aortic lesions in 55 per cent.

During the twelve years 1918–29, inclusive, I saw and kept notes of 2089 cases of organic cardiovascular disease. Of these, 100, or nearly 5 per cent., were certainly syphilitic in origin. If to these be added another 21 of doubtfully syphilitic origin, the percentage is raised to nearly 6. If I had limited my inquiry to hospital patients the share of cardiac lesions due to syphilis would have been 8·4 per cent.

Heimann's [27] series, which he was good enough to prepare for me, raises one interesting question; in it the proportion of cardiovascular disease due to

syphilis was as high in Europeans as in negroes. This contradicts the impression received from talks with medical men who have practised in countries with a large negro population, yet it is supported by other evidence. Donnison,[19] of Kenya, has expressed the view that cardiac syphilis is rare among negroes, and this has been the experience of friends of mine at work in different parts of Africa—Drs. C. C. Chesterman, Alan Bodman, A. J. Keevil, and H. W. Brassington—who kindly supplied me with this information. On the other hand, we have American evidence in support of

TABLE II.—*Clinical. Percentage of all Cardiovascular Disease due to Syphilis.*

Author and city.	Total cases.	Percentage due to syphilis.
Coombs (Bristol)	2,047	5·0
Wyckoff and Lingg (New York)	1,001	9·0
Coffen (Portland, Oregon)	1,673	4·1*
Harris (Liverpool)	—	9·0
Heimann (Johannesburg)	253	15·0

* 5·0 per cent. if organic disease only is included.

the view that negroes are more liable than whites to this disease. Wyckoff [51] and Lingg found that in New York the proportion of cardiovascular disease attributable to syphilis was more than twice as high in negroes as in white patients; and the experience of Swift [50] and Kimbrough, in a Southern State, was to the same effect. Apparently the negro is only more liable to exhibit signs of cardiac syphilis in so far as he is liable, when exposed, to be infected by syphilis. That the syphilis attack-rate in these States is much higher among negroes than among whites may be deduced from a recent paper by Cutting,[18] Loria and Pickell, of New Orleans, and from others from similar sources.

Another contrast is that between the frequency of cardio-aortic syphilis as estimated clinically and its incidence at post-mortem examinations. In our Bristol General Hospital series, for example, the post-mortem incidence was half as large again as that of the cardiosyphilitics as defined clinically. To this discrepancy several influences contribute. One is the liability of these patients to sudden death. Such victims as these find their way into the pathological statistics, but for the most part fail to be observed and recorded by the clinician. Again, there is no doubt that a certain proportion of cardio-aortic syphilis is subclinical in degree. There are lesions that can be seen with the naked eye in an early stage, yet they have not reached the point at which symptoms are produced. In this, cardiac syphilis resembles neurosyphilis. By the time that symptoms appear, whether cardiac or nervous, the anatomical changes on which these depend are already advanced; for Nature has endowed vital tissues with so wide a margin for emergencies that destructive agencies can only evoke those expressions of organic inadequacy that we call "symptoms" by inflicting gross injury, gross enough to destroy a large share of that margin.

There are two other reasons that may help to account for some of this discrepancy between clinical and pathological percentages. The first of these is the somewhat conservative view, that I must confess I hold, as to what constitutes satisfactory ground for a diagnosis of cardiac syphilis. No one would, I think, argue that any of the cases to be discussed presently should be excluded from this paper; but some might say that others ought to have been included. As examples, I have in my mind three patients. One, a man of 46, presented signs of mitral stenosis with auricular failure and also symptoms of locomotor ataxia. The second, a woman, also in middle life, showed exactly similar cardiac signs, with a liability to miscarriage and a positive Wassermann reaction. The third, a girl of 9, a congenital syphilitic whose tabetic father was also my out-patient, displayed signs of early mitral stenosis, together with a typical rheumatic chorea. I have excluded all of these from my group of cardio-syphilitics, on the ground that the lesion displayed—that of mitral stenosis—was one which could not conceivably owe its origin to syphilis, any more than the tabes of the first of these three could be attributed to the rheumatic infection that had injured his heart.

One other reason for the discrepancy under discussion is that pathologists find it almost as difficult as do clinicians to discriminate between what is and what is not syphilis. For this we have to thank the influence of atheromatous change, so often to be seen in those very persons who also exhibit the aortic lesions of syphilis. Not only do these two processes often impinge simultaneously and almost inseparably from one another on the aorta itself, but also, even when the syphilitic lesion has the aorta to itself, its ravages are found to be supplemented by atheromatous disease in the coronary trunks. As a result of this confusion I feel sure that there is a tendency at the present time to label as syphilitic, on the score of the naked-eye appearances, cardiovascular lesions which histological examination would discover to be degenerative.

When we consider all these factors, then, it is not surprising that we find an appreciable discrepancy between clinical and pathological views as to the part played by syphilis in accounting for cardiovascular disease. The frequency of cardiovascular syphilis may be summarised by saying that when we are confronted by an organic lesion of the heart there is a chance of its being syphilitic that varies from 5 to 15 per cent. in different parts of the world.

RESPONSIBILITY OF SYPHILIS FOR CERTAIN KINDS OF CARDIAC DISEASE.

About the part of syphilis in the causation of thoracic aneurysm there is no room for doubt. Camille Lian found evidence of a syphilitic origin in 83 per cent. of his cases, and this accords closely with the experience of most observers from Francis Welch [57] onwards. Abdominal aneurysms are far less often syphilitic. This accords with Turnbull's [52] observation that aortic syphilis is found most often in the first part of the thoracic arch, more than four times as often as in the abdominal portion. It is that stretch of aorta from the sinuses of Valsalva to the origins of the main trunks supplying the head and arms that suffers most, and it is from this stretch that nearly all syphilitic aneurysms arise. For the following data, from the Leeds General Infirmary, I am indebted to Prof. M. J. Stewart and Dr. H. G. Garland.

TABLE III.—*Frequency of Syphilitic Aneurysms in Different Situations.*

Site.	Total number of aneurysms.	Syphilitic.	Percentage of total.
Aorta—			
Ascending	37	32	88·8
Transverse	21	15	71·4
Descending	19	11	57·8
Abdominal	14	5	35·7
Heart	27	3	11·6

In fact, we are justified in assuming that a saccular aneurysm arising from the aortic arch is syphilitic unless there is strong evidence in favour of an alternative view.

About aortic incompetence, however, there is wide difference of opinion. My own Bristol figures show that of 130 hospital in-patients with signs of aortic incompetence 39, or 30 per cent., were syphilitic. Cowan [16] and Faulds found in Glasgow that of 224 patients with aortic incompetence 32·1 per cent. owed their lesion to syphilis. Harmer,[25] scrutinising a series of 467 cases of aortic incompetence, held syphilis responsible for 37·3 per cent. of all those patients whose ages lay between 20 and 70, and

pointed out that 35 was the watershed age between rheumatism on the one hand and syphilis on the other. On the other hand, Longcope,[38] in 1913, thought that three-quarters of the cases of aortic regurgitation seen in adult life were syphilitic. More recent series by Wittgenstein [59] and Allan [1] arrive at a closely similar result. Here it is likely that a good deal of the divergence may arise from a different conception of what is meant by aortic incompetence. Some of the higher estimates are probably based on series from which cases exhibiting additional cardiac lesions, such as mitral stenosis, have been excluded. In our own figures we are speaking of all cases in which a leak in the aortic valve has been detected, no matter what other lesions may have been present. Camille Lian, discriminating between the rheumatic and the non-rheumatic kinds of aortic leak, found a positive Wassermann test in one out of nine cases of the former and 88 out of 108 cases of the latter. It is obvious that the percentage must vary widely, not only with the incidence of syphilis, but also with that of rheumatism, an infection showing such wide geographical variations as to render comparisons between one series of figures and another almost worthless.

Although in my view the use of the term "angina pectoris" is to be deprecated, since it tends to exalt to the status of a syndrome that which is no more than a symptom, yet it is convenient to glance for a moment at those conditions in which præcordial pain excited by effort is the outstanding experience. In a group of 249 patients whose troubles were of this kind, 38, or 15 per cent., came from the syphilitic category. In other words, the share borne by syphilis of the responsibility for kinds of organic disease in which præcordial pain on effort occurs is three times as great as it is for organic heart disease in general, where its share is only 5 per cent. By way of comparison, I have worked out the share borne by the other forms of cardio-arterial degeneration—the hyperpietic and the senile—of these same 249 examples of ischæmia cordis: and I find that these two degenerative influences accounted for 62 per cent., whereas these same categories were only responsible for 42 per cent. of the whole mass of organic heart disease. The comparison, therefore, works out as follows: whereas the hyperpietic and the decrescent classes of cardio-vascular degeneration account for one and a half times as big a share of the pain syndromes as of cardiac disease in general, the corresponding ratio in the case of syphilis is as 3 to 1. In other words, syphilis, when it attacks the cardiovascular apparatus, is twice as likely to involve its victim in a liability to præcordial pain on effort as are the more common forms of cardio-arterial degeneration. This relation, between syphilitic infection of the aorta and heart and cardiac pain, also possesses a particular interest for me, since it was an anomalous feature of this relationship that caused me to re-examine the whole subject. When analysing the conditions under which cardiac infarction occurs, I was greatly surprised to find how small a part syphilis takes in preparing the stage for this tragedy. On inquiry I learnt that this had been the experience of other observers also. For instance, in Levine's [35] large series of cases of coronary thrombosis the Wassermann test reacted positively in only three of the 89 cases to which it was applied; and of the 46 cases examined post mortem, only two showed aortic syphilis. In my own practice, of over 100 cases where I have made a diagnosis of cardiac infarction, generally on the ground that severe sternal or epigastric pain has been followed by evidence of gross damage to the cardiac wall, the background has been syphilitic in one only. This formed so striking a contrast with the incidence of cardiac pain without subsequent organic change that I was moved to institute a careful comparison between the ætiology of these two syndromes. The results of that comparison were to show that, whereas syphilis is a leading cause of cardiac pain without organic sequelæ, it takes but a small part in bringing about coronary occlusion. The reason for this anomaly will appear when the anatomical state of the syphilitic heart comes to be discussed.

Cardiac pain is so often an early symptom of what in my own nomenclature is, perhaps presumptuously, entitled "ventricular failure," that I pass naturally to a consideration of other aspects of this kind of cardiac defeat. Parkinson [41] and Bedford, in discussing the causation of that which they describe as "heart failure with normal rhythm," found a syphilitic element in 21 out of 100 cases. This is that same form of heart failure that Herapath [11] and I ventured to label "ventricular," and my own data agree with those quoted in ascribing a prominent share in its production to syphilis. In another paper Herapath [12] and I analysed a group of 163 cases of what we called "auricular failure"—the type of breakdown that is often designated "fibrillation" or "total arrhythmia," both of them unsatisfactory labels since each denotes only one aspect of the whole affair—and found only three, less than 2 per cent., in which syphilis was known to be a cause.

Finally, there is the question of heart-block. When this category of cardiac failure was first defined the gummata seemed likely causes, and indeed some examples were described; for instance, a remarkable case reported in 1906 by Keith [32] and Charles Miller. Possibly the wish was father to the thought; we hoped that we were being led to a new chapter in cardiovascular therapeutics, wherein localisation of function would pave the way for triumphant attacks upon circumscribed areas of disease. Be that as it may, it is now clear that syphilis is not a common cause of heart-block. My colleague Dr. Herapath stated that in his series of 20 cases of heart-block only two had been syphilitic. The experience of Gallavardin [22] has been identical; of 39 cases of heart-block three were undoubtedly and one possibly due to syphilis.

These glimpses of the chief cardiac syndromes have shown us, then, that syphilis plays the leading part in the production of aortic aneurysm and an important part in rendering the aortic valves inadequate; that it takes almost as large a share of responsibility for failures of the ventricular type and for stenocardia of the transient degree, but is not of much account in causing cardiac infarction, auricular failure, or heart-block.

Age- and Sex-incidence.

The impressions on which this clinical picture is based are derived from a study of the 100 patients of whom I have already spoken, with three others seen during the current year. The incidence of the disease in regard to age and sex was not different from that in the series published by other observers. The average age at which symptoms were first experienced, in 52 cases in which this was ascertained, was 49·6 years, the extremes being 32 and 64 years. Mitchell Bruce,[6] in his Lumleian lectures, found that the syphilitics in his series of cardiovascular degenerations felt their first symptoms at an average age of 49. The age-incidence of Dr. Cullinan's autopsy cases was as follows:—

Only one under 37 years (aged 28).		
37 to 40 years	.. ..	5 cases.
40 to 45 ,,	.. ..	2 ,,
45 to 50 ,,	.. ..	7 ,,
50 to 55 ,,	.. ..	6 ,,
55 to 60 ,,	.. ..	7 ,,
Over 60 ,,	.. ..	4 ,,

The time that had elapsed between infection and the onset of symptoms averaged 22·7 years in my patients. This is a little longer than in most series, but in Mitchell Bruce's cases it was longer still—25 years. This long incubation period that elapses between the invasion of the body by the virus and the development of symptoms of cardiovascular disease brings these lesions into the

same epoch of the infection as locomotor ataxia and general paralysis. It is surely no accident that there is so close a likeness between these two sets of syphilitic phenomena, the cardiac and the nervous. The disease has evolved in the same way, and the only differences that are to be noted are due to the differences of function. We are to expect a rather earlier outcry on the part of the nervous system, since it is always a more sensitive index of disease than any other part of the body; and this is what happens in syphilis. The earliest symptoms of tabes and general paralysis are noted, on an average, at an age that is a little earlier than the symptoms of onset of cardio-aortic syphilis.

There is a similar correspondence between the two sets of lesions, the cardiovascular and the nervous, in respect of their sex-incidence. Actually 90 per cent. of my patients were males, and this preponderance is found in most series, though in our post-mortem series the females accounted for 59 per cent., an exception that I do not here attempt to explain. I can see no strong reason for supposing that the sex-incidence of these later syphilitic phenomena is in any way deceptive. It is usually taught that women are less likely to seek early treatment for syphilis than men are because the primary lesion is so much easier to overlook in women than in men. This being so, the scales determining the probability of effective treatment are heavily weighted in favour of the man. If, in spite of this, men are more apt to develop late syphilis of vital organs, is it not probable that this liability represents a corresponding liability on the part of men to contract syphilis? This is what I should have expected, for it is to be presumed that most men contract syphilis from intercourse with a prostitute, and it is also to be presumed that an infected prostitute passes on the infection to more than one man. Dr. Hardy Kingston, who is in charge of the Venereal Disease Clinic in Bristol, tells me that during 1929 the new cases of syphilis among men were four or five times as numerous as among women, and I imagine this is an average experience. In congenital syphilis of the aorta there is, as far as I can discover from the records, no strong predilection for the males; and this impartiality may not unreasonably be ascribed to the fact that when infection is conveyed through the medium of the placenta to the unborn child there is no way in which the sex of the victim can affect the matter.

Two other points are worthy of note in connexion with the aortic lesions of congenital syphilis. One is that the incubation of these lesions is if anything shorter than it is in the case of acquired syphilis. In many of the recorded instances the diagnosis was made before the patient had reached the age of 20. Congenital syphilis is fortunately becoming a less common disease, and it is therefore to be hoped that the future will hold little opportunity for investigation of the reason for this; but it is perhaps not fanciful to see in the shorter incubation an expression of the intense nature of the infection in inherited as compared with acquired syphilis. Here, again, as in the sex- and race-incidence, we seem to discern a direct proportion between the total force of the infection and its aortic consequences. The more liable the subject is to syphilis, the more liable he is to syphilitic aortitis; and this relation is so nearly direct that there seems little need to introduce other predisposing factors to explain away the greater liability of the male.

In congenital syphilis of the heart and aorta, as in the acquired disease, the aortic lesions fall into the same epoch as those of the cerebro-spinal axis—i.e., they appear at roughly the same interval after birth. Once again, then, we are reminded of the close similarity between the age- and sex-incidence of cardio-aortic syphilis on the one hand and that of cerebro-spinal parasyphilis on the other.

A PROTEOSE IN THE URINE,

EXCRETED IN ANAPHYLACTIC AND ALLERGIC CONDITIONS.

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In a previous communication[1] we reported that, if the urine from cases of allergic and febrile diseases is acidified with sulphuric acid and shaken with a fifth of its volume of ether, the ethereal layer formed on standing, instead of being for the most part clear, as in normal people, becomes opaque, and has a waxy appearance. In strongly positive cases we noted that the tube could be inverted without spilling the contents. We have since found that,[2] if this reaction is carried out in a separating funnel and the lower layer run off, the supernatant layer, when shaken with an equal volume of alcohol, yields a precipitate of a complex nitrogenous substance, which has interesting biological properties.

A 24 hour specimen of urine is collected from a case showing active symptoms, and put in a Winchester bottle containing a little chloroform. Approximately 400 c.cm. is placed in a separating funnel, rendered acid to Congo red with sulphuric acid, and shaken with 100 c.cm. or less of ether. Should the specimen contain urates, it is rendered alkaline with dilute caustic soda to dissolve them, and subsequently made acid. When the two layers are separated, the ethereal layer is treated with an equal volume of alcohol, and the precipitate allowed to settle. The latter is then collected by centrifuging in a sterile centrifuge tube. This tube is inverted in an incubator at 37° C., and the alcohol and ether, present in the precipitate, are allowed to evaporate. When dry, the precipitate is dissolved in sterile N/10 sodium hydrate. The quantity of sodium hydrate required varies with the case, but 2 or 3 c.cm. are usually sufficient. Taking the usual aseptic precautions, 1 c.cm. of this solution is added to 9 c.cm. of 0·5 per cent. phenol dissolved in normal saline. We are accustomed to call this dilution 1 in 100 for convenience. The quantity of precipitate obtained is usually about 0·3 g., so that the NaoH solution is approximately 1 in 10, but, as weighing each precipitate would involve loss of sterility, the exact quantities are ignored. Further dilutions of 1/1000, 1/10,000, 1/100,000, and 1/1,000,000 are made. The sterility of the solution is then tested by inoculating an agar slope, and incubating for 48 hours. If care is taken, the solutions are usually sterile. The chloroform in the 24 hour specimen, and the subsequent treatment with ether and alcohol, seem to kill the contaminating organisms. This is fortunate, as heating destroys some of the properties presently to be described.

Chemical Properties.

The chemical properties of this precipitate are complex, and it appears to belong to the ill-defined group of the proteoses. An exact analysis has not yet been carried out, but an aqueous solution gives the following reactions. The Biuret test is positive, a violet colour being obtained. Millon's reaction is also positive, as is the xanthoproteic. The presence of

* Working with the aid of a grant from the Medical Research Council at the Asthma and Dermatological Clinics, Guy's Hospital.

carbohydrate is indicated by the positive reaction to Mollisch's test. On hydrolysis and analysis by Kossel's method,[3] histidine, arginine, and lysine are found to be present, also various mono-amino acids. It is not coagulated by heat, but is precipitated by heavy metallic salts such as lead acetate, and by alcohol. It is not completely precipitated by half saturation with ammonium sulphate, but is by full saturation. When the substance is hydrolysed with dilute hydrochloric acid a brown precipitate is obtained; this contains phosphorus, and is presumably nucleic acid. From the filtered products of hydrolysis we have succeeded in making an ozazone. It must be remembered that normally a small quantity of mucus is present in urine, secreted by the epithelium of the urinary tract, and this would be extracted by the method outlined above.

We have recently attempted to obtain quantitative figures of the amount of this "proteose" present. This has been done by extracting it from 100 c.cm. of urine, and estimating the contained nitrogen by the method of Kjeldahl. It is found that in the "normal" person (students and laboratory workers in apparent health) the daily output of nitrogen, recovered by this method, varies between about 7 mg. and 25 mg. per diem. Table I. shows comparative figures in health, and in some conditions which we have had the opportunity of investigating.

TABLE I.

Normals.	Proteose N. (Mg. per diem.)	Total N. (Mg. per diem.)	Proteose N. per cent.
1	8	8,896	0·09
2	28	7,968	0·35
3	27	9,708	0·28
4	17	10,931	0·16
5	25	13,977	0·18
6	11	4,900	0·24
7	23	7,940	0·3
8	11	8,064	0·137
9	33	16,018	0·2
Average	20·3	9,811	0·21
Pemphigus	88	9,800	0·82
	65	2,975	2·2
Psoriasis	142·6	9,786	1·46
	113	13,176	0·9
Urticaria	64·2	5,412	1·2
Asthma prurigo	290	12,880	2·2
	49	6,443	0·76
	191	10,380	1·8
	220	12,650	1·8
	126	11,365	1·1
Phthisis—			
Active	122	6,468	1·9
Recovering	70	7,585	0·92
Rheumatism—			
Acute	159	7,330	2·6
Recovering	20	5,026	0·4

This method will probably be found to provide a simple means of estimating quantitatively the "albumose" which has long been known to exist in febrile urines (Wells). We are here concerned with this substance in its relationship to allergic conditions. We will refer to it as "proteose," although it is obvious from the analysis given above that it may contain nucleoprotein, and even glucosamines.

In a case of anaphylactic shock following the intravenous administration of a very small quantity of antidysenteric serum, previously described,[1] the chief urinary findings were as follows:—

1. For the first six and a half hours after the onset of shock there was complete anuria. After this, very small quantities of highly acid, concentrated urine were passed. Then followed the post-paroxysmal diuresis.

2. The first specimen of urine passed deposited urates, and the first three contained albumin.

3. The free acidity rose very markedly during the first 12 hours; during the post-paroxysmal diuresis it fell to a low figure. The ammonia excretion, relatively high at first, remained so during the diuresis, thus disturbing still further the ratio of free-acid to ammonia-combined acid.

4. The ether reaction was very strongly positive in the first specimen obtained, and remained so until the diuresis was established; it was still positive on the morning of the third day.

In this case the diuresis did not occur until the evening of the day after the shock.

Recently we have had the opportunity of observing a case of serum sickness, following the administration of antidiphtheritic serum.

A CASE OF SERUM SICKNESS.

The patient, a medical man aged 25, had had three previous injections of antitetanic serum, the last about one and a half years ago. He was given a prophylactic dose of antidiphtheritic serum, having been coughed at by a child with diphtheria. Four or five days later (the short incubation period being doubtless due to the previous injections of serum), the symptoms of serum sickness began. He was seen by us at 11 A.M. on Dec. 31st, 1929, after a very uncomfortable night, and having had complete anuria; at that time there was generalised adenitis, his expression was pale and anxious, and a profuse urticarial eruption was appearing. He was instructed to collect all the urine passed, and was seen again at 2.30 P.M., at which time the urticaria was intense. An injection of adrenalin was given, which temporarily relieved the itching, and he was put to bed and ordered large quantities of powdered glucose in lemonade. Until 1.30 A.M. on Jan. 1st, 1930, only 315 c.cm. of urine were passed; at this time diuresis began, and between 1.30 and 4 A.M. he passed 2010 c.cm. This diuresis was accompanied by a great amelioration of the symptoms, and by 8.30 A.M. the urticaria had disappeared and he felt comparatively well. There was no relapse.

Tables II. and III. summarise the most important urinary findings in these two cases:—

TABLE II. (Case 1).—*Anaphylactic Shock Following the Administration of Antidysenteric Serum; Shock Commenced 3.30 p.m., July 19th.*

Vol. (c.cm.).	Date in July.	Time.	Free acid.	Ammonia (mg.).	Ratio of free acid to A.-c. A.	Urea (g.).	Albumin.	Urates deposit.	Ether reactions (proteose).
30	19	10 p.m.	34	129·2	1 : 2·2	3·0	+ +	+ +	+ + + +
15		M.	36	122·4	1 : 2·0	2·9	+ +	—	+ + +
75	20	2 A.M.	54	122·4	1 : 1·3	2·7	+	—	+ + +
150		5 ,,	82	136·0	1 : 1·0	2·7	Nil.	—	+ + +
120		8 ,,	78	136·0	1 : 1·0	2·9	,,	—	+ + +
390	—	—	281·8	517·0	1 : 1·0	10·75	—	—	Total.
180	20	7 P.M.	6	30·6	1 : 3·0	1·3	Nil.	—	+
180		8 ,,	4	27·0	1 : 4·0	1·2	,,	—	+
210		10 ,,	4	27·0	1 : 4·0	1·0	,,	—	+
150		11 ,,	2	23·8	1 : 3·5	0·088	,,	—	+
45	21	6 A.M.	34	102·0	1 : 1·8	2·0	,,	—	+ +
150		8 ,,	22	78·2	1 : 2·0	1·9	,,	—	+
915	—	—	77·7	359·0	1 : 2·7	11·72	—	—	Total.

M. = Midnight. A.-c. A. = Ammonia-combined acid.

It should be noted in the second case (Table III.) that:—

1. The three specimens obtained before diuresis began deposited urates, and gave very strong ether reactions.

2. The ammonia excretion was very high, thus causing a marked alteration in the free-acid :: ammonia-combined-acid ratio.

3. With the onset of diuresis there was a sudden drop in the free-acid and to a less extent of the

ammonia combined-acid, and urates were no longer deposited.

4. The ether reaction became negative, and no proteose could be obtained.

It will be seen that the cycle of events in these cases—one of serum anaphylactic shock and one of serum sickness—is practically the same, and is comparable to that previously described as characteristic of allergic conditions, such as the prurigo of Besnier with asthma, infantile eczema, urticaria, and angeioneurotic œdema.[1] It should be noted, however, that in the first case the onset of symptoms, which were those of profound shock, occurred while the serum was actually being injected, whereas in the second there was an incubation period shorter than usual—presumably because antitetanic serum had previously been given on more than one occasion. This latter case threatened to be a severe one of serum sickness, and the symptoms would have been expected to continue for some days. We consider it probable that the rapid recovery can be attributed to the administration of large quantities of glucose; it is possible that, if given just before and for several days after injection of foreign serum, powdered glucose might prevent serum sickness, or, if taken in large doses at the onset, might—as apparently in our case—abort the attack. Further observations on long series of cases are, however, obviously required to establish this suggestion.

TABLE III. (Case 2).—*Patient with Serum Sickness.*

Vol. (c.cm.)	Time.	Titrable acid (c.cm.). N/10 NaoH (per 100 c.cm.).	A.-c. A. (c.cm.).	Urea (g. per 100 c.cm.).	Ratio of free acid to A.-c. A.	Urates deposit.	Proteose.
45	12.30 p.m.	26	130	3·35	1 : 5·0	+	+ + +
240	8.30 ,,	26	104	3·54	1 : 4·0	+	+ + +
30	9.40 ,,	28	126	3·24	1 : 4·5	+	+ + +
540	1.30 a.m.	2	6	0·34	—	Nil.	Nil.
420	3.0 ,,	2	10	0·39	—	,,	,,
1050	4.0 ,,	2	10	0·43	—	,,	—
60	5.0 ,,	6	20	0·41	—	,,	—
480	8.30 ,,	6	28	0·33	—	,,	—
Wheals disappeared.							
420	12.40 p.m.	6	32	1·1	—	,,	—
600	1.0 ,,	2	10	0·35	—	,,	—
900	3.0 ,,	2	22	0·52	—	,,	—
840	10.0 ,,	4	18	0·5	—	,,	—
660	11.30 ,,	Neut.	20	0·52	—	,,	—

Proteose Tests from Urine in Serum Sickness.

The proteose, isolated from the urine of the case of serum sickness referred to above, was put up in various dilutions for certain tests to be detailed below:—

At midday on Jan. 2nd, 1930, 0·1 c.cm. of the patient's own serum, obtained during the period of active symptoms, was injected intradermally in the left forearm of one of us (H. W. B.) at two sites (*a* and *b*). At 4.45 P.M. on the following day, 0·025 c.cm. of a 1/100,000 dilution of the proteose was injected intradermally into one of the sites (*a*) and into another site (*c*) not previously injected with serum; into site (*b*) 0·025 c.cm. of the same dilution of the proteose obtained from the urine of another patient (a case of prurigo) was injected. At 6.30 P.M.—i.e., one hour and three-quarters later—there had developed at site (*a*) an oval wheal about half an inch in size, surrounded by a zone of bright erythema ("flare"). At sites (*b*) and (*c*) small circular wheals without flare were apparent, corresponding in size merely to the elevations produced by the intradermal injections of proteose solution. At 9.30 P.M. the wheal at (*a*) was of about the same size, but had developed a finger-like prolongation from its lower border; the "flare" had almost disappeared. The small wheals at (*b*) and (*c*) had diminished in size, the latter being hardly visible. At 10.45 P.M. the wheal at (*a*) was slightly smaller, but the prolongation had increased in length. There were but traces left of those at (*b*) and (*c*). At 10 A.M. the following morning there were still the flattened remains of the wheal at (*a*) with its prolongation. Nothing but the puncture marks could be seen at (*b*) and (*c*).

The experiment corresponds to the Prausnitz-Küstner reaction. Two areas of skin of a normal person were injected with the serum of a patient in a state of allergy towards horse-serum; as is well known, the antibodies contained in the sensitised serum are fixed by the skin at the site of injection, so that when, 24 hours later, the specific antigen is injected at the same site, an urticarial wheal results. Of the two areas thus sensitised the one (*a*) developed a characteristic wheal of considerable size, with a temporary flare and lasting many hours, after injection of the patient's proteose in high dilution, whereas the other (*b*) gave no response to the proteose of another patient; the non-sensitised area (*c*) did not react to the proteose of the case of serum sickness, which was also injected into another normal subject without response.

Intradermal injections in a dilution of 1/100,000 of the proteose obtained from this case of serum sickness were then made in three subjects known to be horse-sensitive, and positive reactions were obtained. Proteose in the same dilution from an allergic patient, non-sensitive to horse, gave negative reactions. In one of these patients—a horse-asthmatic—the intradermal injection of the proteose from the patient with serum sickness was followed by rhinorrhœa and slight asthma the same evening, although he had not had these symptoms for some time previously.

From these experiments one may conclude that the proteose contained the antigen to which the patient was sensitised, and their importance lies in the fact that the nature of the primary antigen was known.

Two similar experiments were also made by one of us (G. H. O.) in cases in which the antigen was unknown. In a case of migraine the patient's blood was obtained during an attack, and the serum was injected intradermally at two sites in G. H. O.'s arm. The proteose prepared from the urine, collected during the attack, was put up in a dilution of 1/10,000, and on the following day tested on one of the sensitised areas of skin by the scratch method; a wheal with surrounding "flare" resulted, whereas the proteose from a case of asthma in the same dilution gave a negative response when scratched into the other sensitised area. An intradermal test with the proteose from the case of migraine on an unsensitised area of skin was negative. The experiment was repeated in a case of dermatitis herpetiformis with the same result.

It would thus appear justifiable to believe that the proteose excreted in the urine in allergic states contains the active antigen, probably, as will be seen, in combination with the products of tissue autolysis. This view is confirmed by the extraordinary sensitiveness of certain patients even to intradermal injections of minute quantities of their own proteose, and by the therapeutic effect of repeated injections. In the description of the chemical properties of the proteose it was remarked that, when it is hydrolysed with dilute hydrochloric acid, a brown precipitate is obtained, which contains phosphorus and is presumably nucleic acid. Lewis,[4] in an account of his studies with Grant of a person highly sensitive to fish, remarks in a footnote that the active substance in the fish extract employed "appears not to be a coagulable protein, nor is it histamine; Dr. C. R. Harington regards it as associated with nucleic acid. . . ." It is possible, therefore, that the antigenic moiety of urinary

proteose is the part that yields a phosphorus-containing substance on hydrolysis with hydrochloric acid.

Significance of Urinary Proteose.

It must be clearly understood that, as will be seen from Table I., a small quantity of proteose can be recovered from the urine of a normal person in apparent health, but that, when this is scratched or injected into his skin, no local or general reaction results. The total quantity of proteose excreted in the urine is relatively large in acute infections, in anaphylaxis, and in acute and chronic allergic conditions, but from the practical standpoint it is the antigenic moiety that is of importance. In allergic conditions with recurrent crises—e.g., urticaria and certain cases of asthma and prurigo—it is essential that the urine be collected throughout a period that covers the paroxysm, in order that the antigenic substance may be obtained. In chronic conditions, such as psoriasis and rheumatoid arthritis, in which there are no recurrent paroxysms, a 24 hours' specimen of urine should be collected. We have found, for example, in urticaria and asthma that the proteose, isolated during a quiescent period, may give negative cuti- and intradermo-reactions, whereas with that obtained during the stage of active symptoms the reactions are positive.

It is well known that some of the symptoms of anaphylactic and allergic reactions in general, such as urticaria and the contraction of plain muscle in certain organs, may be explained in the light of Lewis's [4] researches as resulting from the local liberation of histamine from sensitised cells, owing to the contact of antigen with the antibodies contained in them. Further, as Dale [5] suggests, anaphylactic injury of the cells of an organ like the liver might liberate histamine into the general circulation in sufficient quantity to cause a reaction in cells of other tissues, not themselves sensitised to the antigen, but sensitive to histamine. Manwaring [6] and others have shown that in dogs sensitisation to an antigen is confined almost entirely to the liver-cells; as a result of anaphylactic damage to them, a substance having histamine-like effects (anaphylotoxin) is liberated, and produces its characteristic action not only on the vessels of the liver itself but also on plain muscle structures elsewhere in the body. Dean,[7] from his post-mortem examination of a case of fatal anaphylactic shock, has pointed out the similarity between such shock in man and in the dog, the chief and essential change in both being in the liver, and we would here emphasise again the evidence of hepatic damage, as revealed by examination of the blood and urine, in both acute and chronic allergic states in human beings.

But, as Dale insists, the liberation of histamine will not account for all the symptoms and disturbances that occur in anaphylactic shock and allergic states. Thus the diminished coagulability of the blood, which is constantly found during the anaphylactic reaction in all animals, is not produced by histamine, but is a result of hepatic damage by various toxic substances. Dale points out that this fact alone suffices to show that constituents of the liver-cells other than histamine are liberated. He says further that "it is unlikely that the histamine, which the liver must pour into the general circulation under such conditions, will be free; it is more likely to be involved in colloidal complexes with the other cell-constituents."

Some recent experiments by Manwaring and his co-workers [8] on dogs are probably of great significance in this connexion. Manwaring, in his earlier experiments, showed that, if the liver of a sensitised dog be completely excluded from the circulation, injection of the antigen into the blood stream has little or no effect, although histamine under such conditions produces its usual response in small blood-vessels and plain muscle. Manwaring concluded that the symptoms of anaphylactic shock in the dog were due to an anaphylotoxin produced in the liver, and having a histamine-like action. He has since shown by transplantation experiments that, as smooth muscle structures can be actively immunised against this anaphylotoxin, the latter must be regarded as a secondary antigen, "presumably of protein nature. This substance is conceivably a denaturisation product of the primary antigen, either explosively formed from the injected toxic dose of the specific foreign protein, or explosively liberated from its storehouse in the hypersensitive liver. In the latter case it would represent a denaturisation product of the sensitising dose." Further experiments [9] confirmed this conclusion, which is "that marked chemical alterations take place in specific antigens when injected into the animal body, and that many of the essential immunologic adaptations are to the resulting denaturisation products (secondary antigens) rather than to the primary antigens originally injected. If this conception of immunological adaptation is correct, it would indicate that there are numerous immunological processes, and presumably numerous specific antibodies, that cannot be demonstrated by current serological methods."

If these experiments of Manwaring are applicable to human beings, they raise a very important question—namely, whether in some allergic states the substance responsible for the symptoms, partially at any rate, is not a product of tissue damage, resulting from the action of primary antigens on sensitised cells, particularly those of the liver, and acting as a secondary antigen. That sensitisation to the products of damaged tissue may occur seems certain. Whitfield [10] has recorded cases of trauma with bruising but without breach of skin surface, in which a generalised erythemato-urticarial rash, resembling that of serum disease, appeared ten days after the injury, an interval that corresponds to the incubation period of serum disease. One of us (H. W. B.) has observed similar cases, and an eruption of the same kind not infrequently follows amputation of the breast, in which there is likely to be considerable extravasation of blood. All dermatologists are familiar with cases of chronic eczematous dermatitis of one area of the skin, usually on the leg, in which, either after the application of some irritant, or from trauma by violent scratching, symmetrical eczematous patches appear on parts of the skin widely distant from the area primarily affected. In such cases there presumably develops a general epidermal sensitisation to products of tissue damage absorbed from this area.

In some cases of allergy, it is true, specific sensitisation to a primary antigen exists, and the symptoms occur only on contact with that antigen. As an example we may cite certain cases of egg-sensitiveness, manifested by acute urticaria occurring immediately egg is eaten, sometimes even when it is taken only into the mouth. In such patients egg-antigen may be the sole cause of the urticaria, but instances of a single and specific susceptibility are the exception. In most cases of chronic urticaria, in the prurigos, in dermatitis herpetiformis, in infantile eczema, and in many cases of spasmodic rhinorrhœa and asthma it is impossible to discover any one specific cause for the attacks; yet, as has been seen, such persons are so sensitive to minute

doses of the proteose, isolated from their own urine, that it must contain the antigenic substance. Is it not likely that this substance is, so to speak, manufactured on the premises, a product of their own tissues? Apart from the experimental work of Manwaring, the evidence we have obtained from biochemical investigations of the blood and urine in these allergic patients points to the liver as the primary site of tissue damage. We may, in fact, regard sensitisation of the liver-cells as being the essential factor in the cases we have in mind, and it is probable that the primary antigens, to which the liver-cells are sensitised, are multiple, so that various foods and their derivatives or bacterial toxins may excite the production by the damaged liver of the actual substance responsible for the symptoms. This substance, in our opinion, is excreted in the urine, and contained in the proteose. In certain acute and chronic infections, also, the symptoms may be caused, not by the direct action of the infecting organism on the structures affected, but by a substance produced as a result of tissue damage by the organism. Many cases of rheumatoid arthritis, for example, can perhaps be explained in this way. The primary antigen may be a streptococcus or other organism, but the arthritis might be an allergic reaction towards a secondary antigen derived from the action of the organism on the patient's tissues.

Therapeutic Considerations.

Method of Therapeutic Application of Urinary Proteose.—As one is dealing with a chemically impure substance of unknown potency, it is always necessary to ascertain the reaction of the patient to the different dilutions before any therapeutic injections are given. This is done by making epidermal tests on the patient with the different dilutions. If, for instance, the 1/10,000 dilution is faintly positive, and the 1/100,000 is negative, a small intradermal test with 0·025 c.cm. of the 1/1,000,000 dilution can be made. If this results in a faintly positive reaction, the strength is suitable for the preliminary injections. We give gradually increasing doses intradermally, and sometimes subcutaneously, once a week, but time alone will show whether this method gives the best results. If care is not taken with the dosage, the patient may react to an over-dose by an acute outbreak of symptoms. We have found, however, that positive epidermal and intradermal tests are more likely to be found in in patients with recurrent acute manifestations of allergy—e.g., urticaria, certain forms of asthma and of prurigo, dermatitis herpetiformis, and light-sensitisation of the adult type. In chronic conditions without acute exacerbations, such as psoriasis, they may be negative, but this does not necessarily imply that a therapeutic effect will not result from injections of the proteose. It is in those diseases in which positive tests are most commonly obtained that acute reactions are likely to follow the injection of too large a dose.

In this paper the methods and results of treatment will be considered only in patients with cutaneous symptoms. The dermatological conditions for which we have given injections of proteose are urticaria, angeioneurotic œdema, prurigo of the simple type, the prurigo of Besnier, dermatitis herpetiformis, psoriasis, and light-sensitisation of the adult type. It should be noted that some cases classified as prurigo of the simple type should more strictly be labelled eczema-prurigo, and that most of those with Besnier's prurigo had eczematisation, partly no doubt as a result of scratching, and either were or had been subject to asthma and paroxysmal rhinitis. One of the patients with psoriasis was first seen with a severe generalised exfoliative dermatitis of six months' duration; her history suggested that it was a complication of psoriasis and this was confirmed subsequently. Our aim has been to present a fair estimate of the value of proteose injections in each of the conditions under consideration; some points of especial interest in certain individual cases will be emphasised. The majority of our patients received dietetic and internal treatment in addition to the injections, but some were purposely given these alone, and among them may be numbered our most satisfactory results.

Urticaria.—Nineteen cases of chronic urticaria and angeioneurotic œdema, all of them of long standing, have been treated in hospital or private practice over a sufficient period of time to allow of conclusions being drawn. In every case dietetic and internal treatments of various kinds had been previously given, and in a few of them other methods of desensitisation had been attempted. Some patients were extremely sensitive even to minute doses, each injection at first provoking an acute attack. The results, as far as we can judge to date, have been very favourable. Sixteen are now entirely free from attacks. In some this result was achieved by a few injections only, in others after two or three months' treatment.

Simple Prurigo.—Thirteen cases have been treated, nine of which are now practically free from itching. One had already become almost free from itching under suitable dietetic and internal treatment before the injections were begun, and cannot therefore be considered. Two were treated successfully by the injections alone, without other treatment. In one, after initial improvement, there was a relapse, and the patient was compelled to go abroad on business. Six cases deserve special mention, as they were particularly severe and intractable and had received expert treatment by other methods before coming under our care. In these we consider the injections were chiefly responsible for the satisfactory results obtained.

Besnier's Prurigo.—The characteristics of this form of prurigo and its frequent association with ichthyosis, asthma, hay-fever, and urticaria have been described in a previous paper.[1] It is clear that most of these patients have an inborn and often hereditary tendency to become sensitised to various antigens, and their life-history is one of repeated or chronic allergic manifestations. It is of interest that a positive van den Bergh reaction of the biphasic type is obtained in a high proportion of cases, even during periods of relative freedom from symptoms. The effect of injections of proteose in these patients has been of great interest. They have all been highly sensitive, even to very small doses, and in several instances severe asthmatic attacks have been provoked, although they had been free from asthma for months or years. It is well known that it is in these cases especially that the phenomenon of alternation of symptoms (*alternances morbides* of Brocq[11]) is met with; for example, when the prurigo or eczematisation is severe the patient is free from asthma, and vice versa. This is by no means constant, for both symptoms may be present concurrently, but on the whole it may be said that the cutaneous and visceral manifestations of allergy tend to alternate.

The initial effect of intradermal injections of proteose appears to be to desensitise the skin, and it is therefore not surprising that, as this improves, a latent visceral symptom, such as asthma, is provoked

If, however, the injections be continued in very small doses—and we think it advisable to give them after a while partly intradermally and partly subcutaneously—the asthmatic attacks cease. With four exceptions this group of patients has received dietetic and internal treatment in addition to the injections, but most of them had been under such treatment for months or years before the injections were begun, and we can therefore state definitely that these, provided the dosage be very carefully controlled, have proved of great value. Moreover, one of the exceptions referred to above—a patient with ichthyosis, eczema, prurigo, and asthma, who had attended many clinics for 18 years—was purposely treated with injections only, and the result has been very striking. Fourteen cases have been treated by the injections; all of them suffered or had previously suffered from asthma, in addition to their prurigo. It is impossible to claim cures in this group of patients, owing to the liability to relapse even after long periods of freedom from symptoms, but in five out of our 14 cases the injections have been discontinued for the past three months, during which time the patients have been comparatively well. The remainder are still under treatment, and are all steadily progressing. An interesting and important observation that we have made in this group is that in those who were ichthyotic the injections have produced a visible effect on the texture of the skin as a whole, so that in some, apart from the condition of the palms and soles, it would be difficult now to recognise the ichthyosis.

Dermatitis Herpetiformis.—In no condition has the effect of proteose injections been more certainly demonstrated than in dermatitis herpetiformis. Nine cases have been treated. One very severe case was given injections only and is free from his eruption at the time of writing. The remaining cases had all received various treatments previously, including dieting, arsenic, auto-hæmotherapy, intestinal vaccine (Danysz), and peptone injections. It can be confidently stated that no other method of desensitisation employed by one of us (H. W. B.) in dermatitis herpetiformis has given results comparable to those we have obtained with proteose injections. Four of these patients had for months relied on arsenic, and in two there were signs and symptoms of arsenical poisoning. On omitting the arsenic a severe relapse of the eruption occurred, but they are now practically well, although it is three months or longer since the injections of proteose were concluded.

One female patient deserves special mention, as she has been under observation by one of us for several years. When first seen the eruption was very severe, the skin was deeply pigmented—partly from arsenical medication—and harsh; she suffered from chronic dyspepsia and obstinate constipation, she was wasted, and lived the life of a semi-invalid. She improved considerably on a carbohydrate-rich but practically vegetarian diet, with injections of an autogenous fæcal vaccine. Later peptone was given by intravenous injection, and subsequently courses of auto-hæmotherapy; these and the addition of glucose to the dietary led to still further improvement both in her general condition and in the eruption, although she was still subject to periodical exacerbations. In November last, injections of a 1/1,000,000 solution of her urinary proteose were commenced and were at first followed by fresh outbreaks of the eruption, but she is now almost entirely free; she has gained several pounds in weight, and the change in her general appearance and the texture of her skin is remarkable. She herself is convinced that the injections of proteose have been responsible for more rapid improvement than anything else.

Psoriasis.—In the majority of cases of psoriasis, treated by us with injections of proteose, the eruption has been associated with rheumatoid arthritis of varying severity (arthropathic psoriasis). In these patients, without exception, a striking feature has been the susceptibility of the affected joints even to minute doses. An injection of 0·1 c.cm. of a 1/1,000,000 dilution is apt to provoke a sharp focal reaction in the joints, with a general but transitory feeling of malaise. The results of treatment in psoriasis arthropathica and in rheumatoid arthritis, uncomplicated by psoriasis, have been very encouraging, but the effect has been more noticeable on the arthritis than on the psoriasis. In the few cases of psoriasis, unaccompanied by arthritis, so far treated by this method, the results have been disappointing on the whole, although two cases of generalised exfoliative dermatitis, occurring as a complication of this disease, did well.

Glucose Therapy.

In our earlier paper on allergy [1] we ascribed the therapeutic value of glucose chiefly to the fact that it provides the liver with a rapidly assimilable source of glycogen, which is essential for many of its recognised functions. Further observations have tended to confirm this view. O'Neill, May, and Manwaring [12] have shown that "glycogen disappears almost quantitatively from the canine liver during the first 15 minutes of anaphylactic shock." Zunz and La Barre [13] found an initial hyperglycæmia in guinea-pig anaphylaxis, and McGuigan and Ross [14] a reduction in liver glycogen during peptone shock. This would suggest that the liver-cells utilise glycogen for their antitoxic function against antigenic substances, or, put in another way, that an adequate source of glycogen protects the liver-cells from damage by such substances. It is significant in this connexion that in some of our cases we have found that the proteose, excreted while the patient was taking large quantities of glucose, gave negative cuti-reactions, but that, after omitting the glucose for a time, we obtained a proteose which produced positive reactions.

In conditions such as chronic urticaria, pruritus of internal origin, the prurigos, the allergic type of infantile eczema, and certain forms of asthma, the patient is liable to paroxysmal crises, usually nocturnal, which are comparable to repeated minor attacks of anaphylactic shock, and it is probable that these deplete the liver-cells of their glycogen-content, so that their glycogenic secretory function is constantly being subjected to an unnatural stimulus. This would explain the rationale of the carbohydrate-rich dietary, with additional glucose or lactose, that clinical experience has proved of value in these cases. We think it important that for therapeutic use the pure powdered glucose should be prescribed in preference to the impure glucosum B.P., and that it should be given in one or two large tumblers of water on waking and at bed-time as well as, if necessary, during the day.

Summary and Conclusions.

1. The preparation and chemical properties of the substance, excreted in the urine and responsible for the ether-reaction, to which reference [2] was made by one of us (G. H. O.) in a previous communication, has been described. This substance, which we have termed urinary "proteose," is of complex composition.

2. Although present in small quantity in the urine of persons apparently in average normal health, it is found in relatively large amounts in acute and chronic microbial infections and admittedly allergic states, and in various other unsuspected or manifest conditions of ill-health. In allergic diseases it would appear to contain the specific antigen to which the symptoms are due.

3. The course and urinary findings in a case of serum sickness are detailed together with experiments designed, according to the Prausnitz-Küstner method, to establish the presence of specific antigen in the urinary proteose.

4. The significance of the proteose is discussed in relation to experimental findings in animal anaphylaxis, and the view is put forward that in chronic or recurrent allergic states, in which the symptoms cannot be ascribed to hypersensitiveness towards one or more known specific antigens, the antigenic moiety of the proteose may be a secondary antigen, produced by the sensitised liver (and possibly by other tissues) on contact with diverse primary antigens. In this case it would correspond to the anaphylotoxin of Manwaring. It is suggested that the manifestations of certain chronic diseases may be caused by sensitisation towards such secondary antigens.

5. The results of the therapeutic application of urinary proteose, in certain diseases of the skin, by means of intradermal and subcutaneous injections of it in high dilution are recorded. The rationale of glucose therapy is also discussed.

In conclusion, it may be said that the importance of urinary proteose lies in the fact that it is a definite substance, which in some acute and chronic diseases appears to contain the specific antigen upon which the symptoms depend, and can therefore be employed for specific desensitisation in measured doses. As a French colleague has put it: "The proteose provides us with a white powder, which is the long-looked-for link between the glass of milk and the colloido-clasic crisis."

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BECCLES WAR MEMORIAL HOSPITAL.—At the annual meeting of this institution it was stated that of every shilling of income patients' payments provide 4½*d.*, the contributory scheme 3¾*d.*, subscriptions 2½*d.*, and endowments 1½*d.*

PAYING PATIENTS AT BIRMINGHAM.—The annual report of St. Chad's Hospital, Birmingham, the primary function of which is to provide expert medical and surgical treatment for persons of moderate means, covers the 12 months to March last. A certain quantity of radium is now available, and there has been a renewal of general equipment. There were 930 in-patients, the largest proportion of whom (324) suffered from affections of the ear, nose, and throat. A labour ward and a nursery have been equipped, and the hospital is now relieving the pressure upon one of the voluntary hospitals by admitting its in-patients who are able to pay fees in accordance with the existing scale. The committee suggest the desirability of some simple system of insurance for paying patients; they believe that a premium of £1 to £1 5*s.* per individual would be adequate. The hospital is prepared to treat patients insured by an outside body on the following scale, irrespective of the kind of treatment required: 10 guineas and 1 guinea for each day's stay, with an additional charge of 10 guineas for a major operation.

PERMANENT HEMIANOPIA IN MIGRAINE AND SUBARACHNOID HÆMORRHAGE.

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I HAVE found no reference in medical writings to permanent hemianopia or other hemi-defects in migraine, migraine epilepsy, and spontaneous subarachnoid hæmorrhage. I think the cases that present them are worthy of record, because they are not very rare, they cause difficulty in diagnosis, and they seem to me to supply evidence that must be considered in discussions on the nature of the cerebral disturbance in migraine, on the relation of migraine to epilepsy, and on the relation—I think it is an intimate one—between migraine and spontaneous subarachnoid hæmorrhage.

Description of Seven Cases.

CASE 1.—Mrs. A., aged 30, has had attacks of migraine for 11 years. The headache is preceded by zig-zag lights, sometimes on the right, more often on the left side. Two years ago, after a severe attack beginning with lights on the left side, she found that she could not see things clearly on this side. A few weeks later she had a fit and was unconscious for three hours. At the beginning of this year Mr. F. A. Juler found that she had a large left-sided "paracentral scotoma of hemianopic type." This persists unchanged. There are no other signs of disease in the nervous system or elsewhere. She has had no more fits; the attacks of migraine have been less frequent and less severe since she began to take luminal a year ago.

CASE 2.—Mr. B., aged 31, has had migraine since the age of 20; a golden rain on the right or left side, sometimes first on one side and then on the other, is followed in about ten minutes by a headache; in some attacks he feels a creeping sensation in the right or left arm. Six years ago he began to have attacks in which "a flushing sensation rises from the stomach to the head"; "he stares and loses himself; he goes right off." Three years ago, after a bad headache, he found that he was blind on the left side and that the left arm and leg were weak. When I examined him first three years ago he had a complete left homonymous hemianopia, definite left-sided pyramidal signs, and some position loss in the left arm. The hemianopia remains unaltered; the other signs have almost disappeared. He is taking bromides and luminal regularly, but still has several attacks of migraine every month, also numerous "flushings"; in two of these he lost consciousness.

CASE 3.—Mr. C., aged 49, suffers from migraine (duration not known); his headaches are preceded by fortification figures; on three occasions during the last 12 years he has had an attack in which the whole of the left side became limp for a few minutes, without loss of consciousness. At long intervals, during the same period, he has had four attacks in which a feeling of numbness in the groins passed slowly upwards to the head; in two of these attacks he lost consciousness for a minute or two, in one for half an hour, and in another for four hours. Three months before he came under observation he felt dizzy and noticed that he could not see things on his right side. He was admitted to the National Hospital, Queen-square, under the care of Dr. Hinds Howell. Examination revealed nothing abnormal except a right homonymous hemianopia.

CASE 4.—Mr. D., aged 26, has had frequent attacks of migraine for seven years. Everything goes misty for about ten minutes, then he gets a headache usually on the right side. Five weeks ago, while at breakfast, he had a "collapse"; it began with misty vision on the left side and pins and needles in the left arm; something rushed from his stomach to his head; he felt very queer and slid down from his chair; he did not lose consciousness, but he had to be assisted to bed. He had a severe headache all that day; during the day he noticed that he could not see things on his left side. A month later Mr. Adrian Caddy mapped out a complete left homonymous hemianopia which just spared the fixation-point. This persists. A complete investigation, including an examination of the cerebro-spinal fluid, revealed nothing else abnormal.

CASE 5.—Mr. E., aged 28, began to have headaches preceded by flashing lights at the age of 13. After one of his early attacks he noticed a persistent black shadow in

the outermost part of the left field of vision; it was there when he covered one or the other eye. Thereafter for about three years he had no more attacks, but the shadow remained. Since the age of 17 he has had an attack about once a month; while the headache was on, and for about half an hour afterwards, a greyness filled the remaining normal portion of the left field. Three weeks ago while at work he saw "a sparkling spangling blur" on the left side for about five minutes; this was followed by the most severe headache he has ever had; it lasted half an hour; after it had subsided he went on with his work; he then found that he could not see things on his left side. He had another headache four days later, otherwise he has felt well. He was admitted to the National Hospital three weeks after the severe attack: investigation, including an examination of the cerebro-spinal fluid, revealed nothing abnormal except a complete left homonymous hemianopia which divided the fixation-point.

CASE 6.—Mr. F., aged 35, has had attacks of migraine for ten years. After one of his early attacks he "lost the sight on the left side" for several days. During the last year he has had three attacks in which the right arm and leg became helpless and numb; this followed dimness of vision, once on the left side, twice on the right, and was accompanied by a feeling of pins and needles which spread from the right hand to the whole of the right side. On two occasions, several days after these attacks, I found a definite extensor response on the right side. While he was in the National Hospital in an interval between attacks the plantar response on the right side was flexor or doubtful. Otherwise there were no abnormal signs.

CASE 7.—Mr. G., aged 31, came under observation for left homonymous hemianopia; this was noticed two years ago, when he went to work after being in bed for three days with severe headache and vomiting. Fourteen years ago he had an illness which was diagnosed as meningitis. His neck was stiff, and he had a very severe headache for two weeks. During this illness "bloody fluid was drawn from the spine with a long needle." The headache on this occasion was "just like the one when the sight went." Seven months ago he had two fits with ten days interval between them; they came on without warning; he lost consciousness, was convulsed, and bit his tongue; they were not preceded by a headache; he recovered completely in an hour or two.

Six days after the onset of the visual trouble Mr. C. L. Gimblett found a complete left homonymous hemianopia which just spared the fixation-point. Eighteen months later the same observer found that some recovery had occurred in the central part of the fields only. When I saw him at this time I found nothing abnormal apart from the field defect, and reported that I had "little doubt that he has a congenital aneurysm that leaks from time to time."

Comment.

I shall not attempt to discuss here the bearing of these cases on the problem of the nature of the cerebral disturbance in migraine and the relation of migraine to epilepsy, but I wish to amplify, very briefly, my statement that there is an intimate relation between migraine and spontaneous subarachnoid hæmorrhage. This conclusion is based on the following set of observations:—

Migraine with classical symptoms of long duration is sometimes complicated by homonymous hemianopia and other hemi-defects, usually left-sided. In these cases, as in uncomplicated migraine, the visual hallucinations appear sometimes on one side, sometimes on the other, but much more frequently on the left side; non-visual sensory hallucinations sometimes precede the headache in cases that ultimately have hemianopia.

Patients with a long history of migraine and epilepsy may, as I have shown, come before us with permanent hemianopia and other focal signs. These may appear (*a*) after an attack of migraine, (*b*) after an attack in which consciousness is lost, (*c*) after an attack unlike these—e.g. with "dizziness" only.

Patients with an exactly similar history may have subarachnoid hæmorrhage. An example of this has so far eluded me, but Symonds[1] has described the case of a man, aged 37, who, "having for 26 years been subject to attacks both of epilepsy and migraine, but otherwise in good health, had an attack of subarachnoid hæmorrhage from which he made a complete recovery." The symptoms in spontaneous subarachnoid hæmorrhage are usually those of diffuse cerebral irritation or compression, but signs of a unilateral focal lesion may be present in the acute phase, focal signs may persist after an acute phase with signs of diffuse meningeal irritation, and a hemi-defect—e.g., hemianopia—may appear suddenly with no more general disturbance than a headache in a person who is known to have survived an attack of subarachnoid hæmorrhage in the past.

Migraine is a not uncommon precursor of spontaneous subarachnoid hæmorrhage. Goldflam[2] obtained a history of "true migraine" in five of 13 cases. Two of my cases—one proved by examination of the cerebro-spinal fluid, the other by autopsy ("congenital" aneurysm)—gave a long history of migraine with right- and left-sided hallucinations. Parkes Weber's[3] patient had migraine-like attacks, chiefly left-sided, for 30 years.

Thus we may expect to encounter the following observed sequences and combinations:—

Migraine, focal signs—e.g., hemianopia.
Migraine, focal signs, epilepsy.
Migraine, epilepsy, focal signs.
Migraine, epilepsy, subarachnoid hæmorrhage.
Migraine, subarachnoid hæmorrhage.
Subarachnoid hæmorrhage, focal signs, epilepsy.

At first sight it might appear probable that these are all due to the presence of a congenital aneurysm whose manifestations vary according to whether it gives rise to circulatory disturbance in its vicinity, short of bleeding, or leaks into the cerebral substance or into the subarachnoid space. It is certain, however, that no aneurysm is present in many of the young people who die of subarachnoid hæmorrhage, and I do not believe that the presence of this lesion is necessary for the production of the symptoms I have described. I am more inclined to conclude that some recurring disturbance of the cerebral circulation whose nature is at present unknown may, in minor form, manifest itself in symptoms for which migraine and epilepsy are convenient labels and, in major form, lead to infarction of the cerebral cortex or hæmorrhage into the subarachnoid space.

I wish to thank my colleagues, Mr. Caddy, Mr. Gimblett, Mr. Juler, Mr. Preston, Dr. Hinds Howell, and Dr. Denny Brown, for permission to refer to their cases and for their kindly assistance.

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THE VASCULAR LINK BETWEEN THE PITUITARY AND THE HYPOTHALAMUS.

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IN the Lister lecture published in the last two issues of THE LANCET, Prof. Harvey Cushing gives a masterly summary of the facts relating to the functional coöperation between the pituitary body and the hypothalamus. Hence a communication which we made to the Anatomical Society of Great

Britain and Ireland at University College on June 20th may be of some interest as affording new evidence in corroboration and extension of Prof. Cushing's argument. Pending the publication of our report on the presence of a hitherto unrecognised hypophysio-portal system of veins, we propose to call attention (by means of a photograph and an explanatory diagram) to the fact that there is a system of vessels which collects blood from both lobes of the pituitary and distributes it to the hypothalamus.

FIG. 2.

Photograph of the pituitary and hypothalamus (cleared in xylol) of another new-born child from the front, to demonstrate the naked-eye appearance of the hypophysio-portal veins in the stalk of the pituitary.

The secondary distribution net lies beneath the infundibular recess of the third ventricle, and there are indications that prolongations extend towards the nucleus paraventricularis and the nucleus supra-opticus.

Fig. 1 represents a graphic reconstruction of the hypophysis of a new-born child which was cut serially in sagittal sections (15μ thick) and stained by the silver nitrate method of Bielschowsky. Fig. 2 is a reproduction of an enlarged photograph of the pituitary and hypothalamus of another new-born child viewed from the front after clearing in xylol. It shows the blood-vessels represented diagramatically from the left side in Fig. 1 (in particular those on the stalk of the pituitary) with which this note is specially concerned, as they are revealed to the naked eye.

In Fig. 1, A is the anterior, and P the posterior lobe of the pituitary, and I the pars intermedia. The vessels numbered 1 are the hypophysio-portal veins arising from sinusoids (7) in the anterior lobe and from capillaries (16) in the posterior lobe. The branches which come from the pars intermedia are not shown in the diagram. On each side the internal carotid artery supplies to the gland a branch (2) which takes a spiral course (3) before opening into the sinusoids (7) from which the hypophysio-portal vessels of the anterior lobe arise. This artery from the carotid also gives branches (15) into the posterior lobe before it enters the anterior lobe. From the anterior lobe veins (4 and 5) leave the pituitary to enter the cavernous sinus (6). In this diagram the cavernous sinus is put below the pituitary merely for the sake of clearness, but obviously this is not its proper place.

FIG. 1.

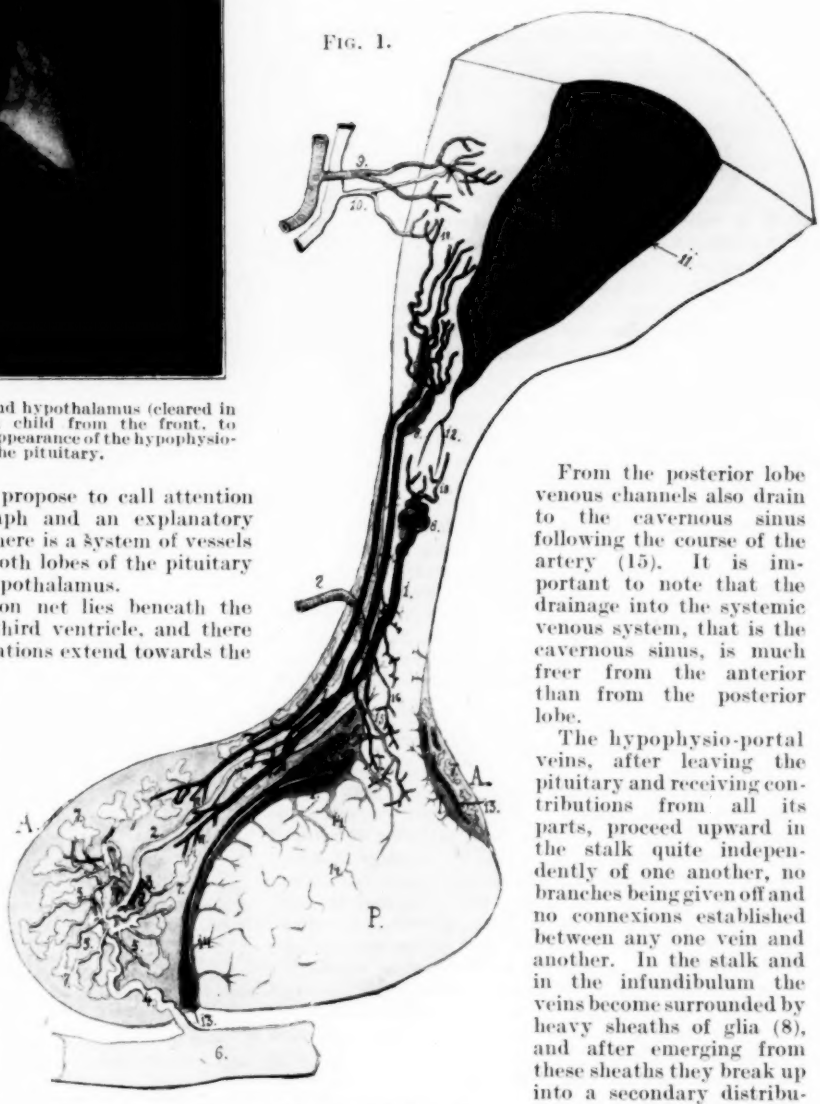

Diagram based on a graphic reconstruction of a series of sagittal sections (Bielschowsky stain) of the hypophysis of a new-born child, seen from the left side

From the posterior lobe venous channels also drain to the cavernous sinus following the course of the artery (15). It is important to note that the drainage into the systemic venous system, that is the cavernous sinus, is much freer from the anterior than from the posterior lobe.

The hypophysio-portal veins, after leaving the pituitary and receiving contributions from all its parts, proceed upward in the stalk quite independently of one another, no branches being given off and no connexions established between any one vein and another. In the stalk and in the infundibulum the veins become surrounded by heavy sheaths of glia (8), and after emerging from these sheaths they break up into a secondary distribution net (18), which is placed beneath the infundibular recess of the third

ventricle (11), and appears to have a definite distribution in the direction of the paraventricular and supraoptic ganglia of the hypothalamus, in which Collin has actually found the colloid substance such as we have found in the lumen of the hypophysio-portal veins. In addition to the arterial supply from the carotid (2) there are small arteries (9) proceeding to the infundibulum, and small veins (10) with a corresponding arrangement, which in some of our cases, although not in the one represented in this diagram, give branches which extend down in the infundibulum to reach the uppermost part of the pars tuberalis of the pituitary, such as Prof. Cushing's colleagues Dandy and Geotsch described in the dog (see THE LANCET, July 19th, p. 125).

Extensive prolongations (14) of glandular tissue from the pars intermedia and pars tuberalis intrude into the tissue of the posterior lobe of the stalk. The cleft (13) is exceptionally large in the young child in comparison with the condition found in the adult. Also the pars tuberalis extends much higher upon the stalk than it usually does in the adult.

Apart from these differences the other statements in this note apply equally to the adult.

CLINICAL AND LABORATORY NOTES

GASTRO-JEJUNO-COLIC FISTULA WITH ŒDEMA.

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THIS case is of particular interest because of the development of a general anasarca. This supervened upon a gastro-jejuno-colic fistula produced in an adult, a condition akin to one which has been observed in childhood during the course of cœliac disease. Gastro-colic fistula is fortunately rare, and its association with general œdema must be exceptional.

THE CASE RELATED.

A French polisher, aged 46, was admitted to University College Hospital in January, 1930. He gave a history of diarrhœa for one year, increasing weakness and loss of weight for six months, and œdema of the lower limbs for three months before admission. The essential fact in his previous history was that in 1902 he had symptoms of indigestion which became progressively worse, and that in October, 1927, an X ray examination showed obstruction at the pyloric end of the stomach with delay in emptying. At operation a chronic ulcer of the first part of the duodenum with pyloric stenosis was found and a posterior gastro-jejunostomy was undertaken.

After the operation the man was completely relieved of his symptoms and started to gain weight. He remained in good health until January, 1929, when he contracted "influenza." Three weeks later he began to suffer from diarrhœa and this persisted, the bowels being open during the night as well as during the day. The average number of motions was four in 24 hours, with a maximum of seven. The appetite remained good and he kept to a normal diet. After six months persistent diarrhœa he noticed himself becoming weaker and losing weight, so that he had to cease work. In October, 1929 (nine months after the commencement of the diarrhœa), swelling of the feet and legs developed. He was ordered to bed, but the œdema increased involving the thighs and abdomen. This gradually improved; but as soon as he got up and about the swelling recurred.

Condition on Admission.—He was a small man, pale, asthenic, and wasted. The most prominent clinical sign was anasarca. There was œdema of both lower limbs and sacrum, free fluid in the abdomen, œdema of the bases of both lungs, and occasional swellings of the face. The heart was not enlarged but the sounds were faint. There were no signs of venous congestion. The pulse-rate was slow, 48 to 80. The systolic blood pressure was persistently low, varying between 90 and 118 mm. Hg. The temperature remained subnormal. The liver, spleen, and kidneys were not palpable. The examination of the urine showed no sugar or albumin.

Progress.—Œdema of both forearms and hands developed. It was noticed that the output of urine was low, averaging 20 oz. a day, but there was no reaction to diuretic drugs.

A urea-concentration test for renal efficency showed a normal percentage of urea in the urine.

A blood count was done and this showed:—

Total red cells	5,500,000	Polymorphs	79%
Hæmoglobin	76%	Lymphocytes	18%
Colour-index	0·7	Large mononuclears	3%
Total white cells	7,100		

The bowels were open, on an average, twice in the day and once in the night. The motions were liquid, dark grey in colour, acid in reaction, and had a foul smell. Culture gave a growth of bacillus only. At first he was treated with kaolin ʒi. t.d.s. As this had no effect on the diarrhœa, which seemed to exhaust the patient, he was given a mixture of bismuth and opium. The motions were reduced to one in 24 hours but this was associated with vomiting which occurred once a day for three days. The vomit was then found to be fæcal, and on comparison with the fæces was macroscopically identical. A diagnosis of gastro-colic fistula was made and a radiographic examination showed that an opaque meal passed from the stomach into the transverse colon via the jejunum.

There was no alternative but *operation* and this was done by Mr. Julian Taylor after a preliminary blood transfusion. Owing to the poor general condition and œdema of the lungs, local anæsthesia was employed. The fistula was masked by adhesions, so that a block resection was done. The stomach was closed and the continuity of both the small and large bowel was restored by separate end-to-end anastomoses. The mass removed showed a well-formed gastro-jejunal opening. One inch distally the jejunum communicated with the transverse colon through a track one inch long, lined with mucous membrane. No jejunal ulcer could be seen. The patient died eight hours after the operation.

Post-mortem examination showed death to be due to acute broncho-pneumonia. There was marked wasting with absence of fat in all tissues; the weight was 7 st. 8 lb. The heart was small and the myocardium atrophied. There was atheroma of the great vessels. The liver was small, firm, and yellow. The spleen was atrophied. The kidneys were congested but otherwise normal. The veins of the limbs were not occluded by thrombosis. There were tough adhesions tightly binding the first part of the duodenum and the pylorus to the hilum of the liver. The healed scar of a duodenal ulcer was present in the posterior wall of the duodenum, immediately beyond the pyloric sphincter which was constricted to a diameter of 1 cm.

Microscopical examination showed myocardial atrophy, severe fatty degeneration of the liver, and that the kidneys exhibited no signs of nephritis. No gross cause for the œdema could be assigned.

COMMENTARY.

About 250 cases of gastro-colic fistulæ are reported in the literature. The common causes are carcinoma of the stomach or transverse colon, and jejunal ulceration following gastro-enterostomy. The occurrence of the latter group is increasing in proportion to the frequency that the operation is done. The exact percentage of the gastro-enterostomies which are complicated by fistula is uncertain, possibly about 2 per cent. Symptoms usually appear within two years of the operation. According to the accounts of Bolton and Trotter[1] and Verbrugge,[2] the main symptoms of this condition in order of frequency are: (1) diarrhœa; (2) vomiting of matter which is sometimes but not always identical with that passed by the bowel; (3) eructation of foul-smelling gases; (4) pain, which may be associated with jejunal ulceration or with subacute obstruction; and is more or less generally distributed over the abdomen; (5) wasting and weakness; (6) appetite remains good. To these symptoms may be added the tendency to fæcal vomiting when the diarrhœa is checked.

In this case diarrhœa and anasarca were the only symptoms apart from general weakness before the patient came under observation, and this indicates that any patient developing chronic diarrhœa after gastro-enterostomy should be investigated for a gastro-colic fistula. An absolute diagnosis may be made by employing the following tests:—

(1) Barium meal or an opaque enema.

(2) The giving of substances by the mouth, the excretion of which is timed—e.g., charcoal biscuits.

(3) The recovery from the stomach of dyes given as enemata.

The œdema in this case showed close resemblance to that which occurred in Central Europe during the late war. Many cases were reported from Germany, Poland, and Austria and Hungary in association with malnutrition. These cases of "war nutritional œdema" have been summarised by Maver.[3] Similar cases were reported from Egypt by Bigland,[4] who also noted the association of œdema with tropical diseases such as dysentery, cholera, and malaria.

The clinical picture exhibited by these cases of "nutritional œdema" was: œdema, usually of the feet and ankles, but also occasionally affecting the thighs, trunk, scrotum, face, and hands, with ascites and hydrothorax; emaciation; muscular weakness; anæmia; gastro-intestinal disturbances; a deficient diet; urine contained no albumin nor sugar; bradycardia; low blood pressure; blood count showed red blood cells 1·5 to 4 million, colour-index greater than one, lymphocytes 30 to 50 per cent.

Hume[5] and Chapin[6] report similar œdema in marantic infants suffering from: (1) Diarrhœa and vomiting. Difficult digestion and malnutrition. (2) Exhaustive conditions such as prematurity, marasmus, and extreme secondary anæmia. (3) In constitutional diseases: syphilis, tuberculosis, and pertussis. Poynton,[7] in a case of fatal cœliac disease, demonstrated that the ascites was not due to tuberculous peritonitis.

Various factors have been suggested as the prime cause in the cases of "nutritional" œdema. Retention of chlorides, lack of calcium and phosphorus in the blood, a diet lacking fresh vegetables, vitamins or protein, or a diet with excess of carbohydrates and water have been each considered the chief ætiological factor. The one common condition in all these cases is semi-starvation, the result of either lack of food or non-absorption due to gastro-intestinal disturbances.

This man was receiving an adequate mixed diet, but owing to the short circuiting of the small intestine, food could not be absorbed. The diagnosis was difficult until the fœtal vomiting occurred and this case brought home very forcibly the importance of a mysterious and persistent diarrhœa following upon a history of gastro-enterostomy for ulcer of the duodenum.

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CHARCOT'S ARTHROPATHY OF THE SACRO-ILIAC JOINT.

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Charcot's arthropathy has been described as affecting most of the joints of the body, but I have been unable to trace a record of the sacro-iliac joint being involved. Micheleau,[1] Busche,[2] and Abadie[3] described deformities of the pelvis in tabes, but only as the result of arthropathy of the vertebral column causing changes from the postural attitude of the patient. Bramwell,[4] quoting an abstract from the *Centralblatt f. d. Grenzegebiete der Med. u. Chir.* (August 18th, 1904), says that the iliac crests may show considerable thickening and distortion, presenting a rough uneven surface, and numerous large exostoses. Neither Chipault,[5] in classifying 268 tabetic arthropathies, nor Gowers,[6] in numerous cases, found one in which the sacro-iliac joint was affected. I therefore place on record the following case:—

Mr. A. B., aged 45, a Levantine, consulted me in November, 1928. He was fairly weak, and complained of some sores on his back which had discharged for six months and were increasing in size and number. There were no abnormal symptoms except some irregularity of the bowels. There was a history of syphilis and gonorrhœa about 20 years previously, and in 1921, following a two years' history of pain and chronic obstruction suggesting trouble in the right iliac fossa, laparotomy was done by Mr. G. Gordon-Taylor at the Middlesex Hospital. Hyperplastic ileocæcal tubercle was found, and the terminal foot of the ileum, cæcum, ascending colon, and half the transverse colon were removed.

On examination there was, over the sacrum, a group of typical syphilitic punched-out serpiginous ulcers with yellowish slough in the base. Two thin, slightly pigmented, scars were present over the left tibia. The pupils were irregular in outline and unequal in size, but reacted to light and accommodation. The ankle-jerks were sluggish, the other reflexes brisk; there was loss of deep sensation in the calf muscles, otherwise no sensory disturbance. The Wassermann reaction was very strongly positive. No tubercle bacilli were found in the sputum, fæces, or discharge from the ulcers. Radiographic examination of the pelvis showed the gross hypertrophic and destructive changes in the left sacro-iliac joint, typical of Charcot's disease of joints.

Vigorous antisyphilitic treatment with iodides, mercury, bismuth, and neosalvarsan resulted at first

in great improvement in the general condition and later the ulcers healed completely. The patient is suffering no inconvenience from the pelvic lesion.

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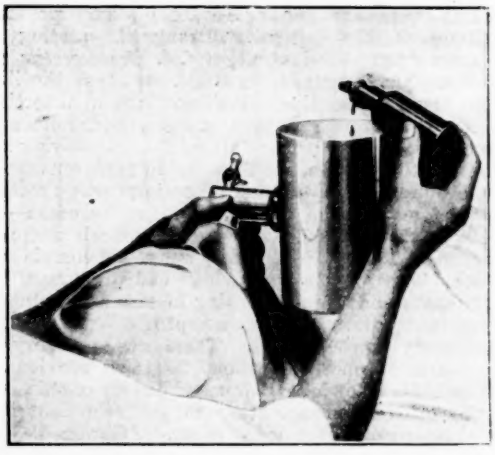
NEW INVENTIONS

AN IMPROVED OPEN ETHER INHALER.

THE inhaler shown in the illustration preserves the simplicity of the open method and increases its safety. The gauze-covered mask is placed in a container which is situated at the side of the face and never above it, the lower part of the container being a large well which traps any excess of liquid ether. It is thus impossible for the anæsthetic to get into the eyes of the patient, however freely it is used. The apparatus is made of metal (mostly aluminium), and is less than half the weight of an average Clover's inhaler. The whole apparatus may be boiled. Both the facepiece and the container may be rotated on the connecting tube, thus enabling the inhaler to be



adapted to any position of the head while keeping the container in a vertical position. A tap is fitted for oxygen or carbon dioxide administration when required. The aluminium cage which supports the gauze does not require hinges or retaining clips for its covering, which are weak points in the ordinary type of mask. The component parts are riveted together, thus avoiding the small and flimsy soldered joints of the conventional wire cage. A pad of gauze is placed over the framework, and the whole is slid into the container, which is just large enough to hold it comfortably and just small enough to keep the gauze in position. The apparatus is reasonable in price, compact, and easily controllable with one hand, while there is no mechanism to get out of order, thus enabling the anæsthetist to concentrate solely upon the patient's condition and the surgeon's requirements. Messrs. Reynolds and Branson, of 13, Briggate, Leeds, are the manufacturers.

W. STANLEY SYKES, M.B. Camb.

NEW PATTERN LIPIODOL TROCAR AND CANNULA.

I HAVE been using a special trocar and cannula (see figure) which facilitates and simplifies the little operation for introducing lipiodol into the trachea for getting an X ray picture of the bronchial tree. The instrument is a small curved trocar and cannula mounted on a comparatively large handle at a suitable angle. Curved on the circumference of a circle of 16 mm. radius, the trocar has a sharp point which projects 3½ mm. from the cannula, which is 28 mm. long and 2 mm. in diameter, and has a fixed collar; the trocar is rigid and moves easily in the cannula. The large-sized and comfortable handle contributes

greatly to the control of the instrument and to the precision of the operation. One size only is needed, as the instrument is equally convenient for the largest and smallest trachea. As the result of the X ray examination depends on the quality of the skiagram obtained, which in turn largely depends on good technique, an instrument the use of which tends to secure freedom from coughing, crying, and spasmodic movements of the chest during the operation will go far towards securing with lipiodol a good representation of the bronchial tree. The curved trocar obviates flattening out of the trachea from antero-posterior pressure. In addition to the instrument described it is an advantage to have a tenotomy knife or a small double-edged knife for puncturing the skin.

The instrument was made for me by Mr. R. Schranz, and can be obtained from the Genito-Urinary Mfg. Co., Ltd., of 28A, Devonshire-street, W.1.

J. B. CHRISTOPHERSON, C.B.E., M.D. Camb., F.R.C.P. Lond.,
Physician, City of London Hospital, Victoria Park, E.

AN IMPROVED FORM OF STEINMANN'S PIN.

A MODIFICATION of Steinmann's pin, now in routine use in the orthopædic wards of St. Thomas's Hospital, is here illustrated. It differs from the standard pattern only in that it has a screw thread at each end on to which fits a winged nut. When cords are attached to the pin, the nut prevents their slipping off, and even allows the cords to diverge from the line of the

limb—often a great help in removing pressure from bony prominences distal to the point of insertion. The ordinary insertor handle is used with a screwing motion while the thread is traversing the bone, and the time taken therefore is slightly increased. Nitrous oxide anæsthesia still suffices for adults, while, as previously, gentle extraction requires no anæsthetic.

Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, are the manufacturers.

JAMES H. CYRIAX, M.R.C.S., L.R.C.P. Lond.

THE NEW MENTAL TREATMENT ACT.

CONFERENCE OF LOCAL AUTHORITIES.

ON July 22nd and 23rd the Board of Control convened a conference of local authorities and visiting committees to discuss new administrative questions raised by the Mental Treatment Act, 1930. The chair was taken by Mr. L. G. BROCK, Chairman of the Board of Control, and Mr. ARTHUR GREENWOOD, the Minister of Health, addressed the congress on the second afternoon. Mr. BROCK emphasised the fact that, although for purposes of discussion the Act was regarded in sections, it was one coördinated piece of machinery.

At the first session, Dr. T. S. GOOD opened a discussion on "Out-patient Clinics," and described the origin and working of the clinic at Oxford. He argued for the establishment of clinics in connexion with general hospitals, and said that, although the admission-rate at the Radcliffe Infirmary and the general population of Oxford had increased, yet the number of mental patients chargeable to the city and the admission-rate at the mental hospital had appreciably diminished since the opening of the out-patient clinic. Reference to this discussion will be found on p. 247.

At the next session a discussion on "Voluntary Patients" was opened by Dr. THOMAS BEATON, and at the final session there were short discussions on research, after-care, and the extension of the urgency order to rate-aided patients.

Treatment of Temporary Patients.

At the third session Sir HUBERT BOND opened a discussion on Temporary Patients under Section 5. This section, he said, might almost be regarded as the pivot upon which the successful working of the Act rested. It abolished magisterial intervention for a period long enough to allow effective treatment; it abolished certification as an essential preliminary, and thus provided a direct stimulus to immediate treatment; it did more than any other legislative step in the last century to compose the differences between the medical and legal attitudes, and it created a new class of patient intermediate between the voluntary and the certified. The period allowed for temporary treatment was six months, extendable by the Board of Control to a maximum of 12 months. It was most important that no attempt should be made to strain the words of the Act to cover patients who were, in fact, unwilling and who ought to be certified. Since the visitation by a justice within a month of reception had proved unavoidable, it must be obeyed loyally. Sir Hubert urged everyone, however disappointed he might feel, to do his utmost to prove the Act a success, and to avoid awkward incidents. It was important that the patient should be seen by the official visitors in his bed or his own ward, and questions of procedure and status should never be discussed in his hearing. The condition covered by "the temporary status" often arose very suddenly, as in the puerperium or during toxæmia, but it might also arise in a patient already under care. If the patient were certified, there would be no call to change his status; if he were voluntary and lost his capacity to express his willingness to continue treatment, he must be discharged, certified, or placed on a temporary basis after 28 days. To avoid a feeling afterwards of unfair treatment, judicious chats with a voluntary patient were useful to inform him, without alarming him, of the possibilities inherent in mental illnesses. Nevertheless, difficult cases were bound to arise. The form of application was quite different from a certificate and the safeguards were not identical with those under the Lunacy Acts; they should, therefore, be studied carefully by medical officers. There was no restriction on the place of reception of the patient, except the approval of the Board of Control, but local authorities were under a very real moral obligation to provide active, up-to-date treatment. It was most important to nip in the bud the pernicious tendency to speak of "voluntary," "temporary," and "certified," as though these grades represented grades of severity of illness with corresponding inverse grades of recoverability and standards of accommodation and treatment. This tendency would kill the prestige of mental hospitals, mutilate their functions, and do incalculable harm to treatment. It was, however, part of the moral obligation of local authorities to provide for incipient and recent cases accommodation apart from chronic cases. In view of the new Act, there was an urgent need for the provision of an admission unit to all mental hospitals. Something in the nature of a bridge was needed between the home and the mental hospital; this "bridge" should have adequate laboratory facilities and, although it might serve as an observation centre, must emphatically not be regarded as a clearing-house. Its chief physician should be the physician in charge of the mental hospital. Its location was a matter for discussion, but undoubtedly the best place would be in close connexion with the local voluntary hospital.

THE PREPARATION OF THE APPROVED LIST.

The CHAIRMAN announced that the Board of Control, in order to perform its delicate task of drawing up lists of approved practitioners, had appointed a medical committee with Sir John Rose Bradford as President, and representatives of the Royal Medico-Psychological Association, the British Medical Association, and the Royal Society of Medicine as members. The Board would be represented by Sir Hubert Bond and Dr. A. Rotherham. He further pointed out that the section contemplated the reception of temporary patients into general hospitals which had been approved by the Board. This provision would have the great advantage of leading to a closer association between the general, voluntary, and mental hospitals, and between psychiatry and general medicine. It would be of especial value in cases complicated by obscure physical conditions, because the general hospital contained a medical team such as the mental hospital could not provide, and the study of these cases was likely to throw much light upon the relations between mental and physical disease. Moreover, the introduction of mental patients into teaching hospitals would give the student opportunities of clinical experience hitherto denied to him. The arrangements would not be uniform over the whole country and the change could not be made immediately, but it was important that the minds of all concerned should be focused at once on the project.

DIFFICULTIES.

Dr. W. F. MENZIES mentioned a few of the difficulties of Section 5. In North Staffordshire the voluntary hospitals were not anxious to receive mental cases. He asked who were to make the recommendations, one of which called for a specialist's knowledge; there were not enough psychiatrists in the country to go round. It had been suggested that the medical officer of health's assistants should undertake the duty, and it was very hard to persuade a committee

that the mental deficiency expert was not necessarily an expert in curable mental disorders. It was also suggested that panel practitioners, who had given good service as recommenders of licensed houses, should give the second recommendation. This arrangement would obviously not work. The public assistance officer, again, had a magnificent record, but was not a medical expert. Dr. Menzies said that he would like to see the family doctor as one recommender and the medical officer of the mental hospital as the other. The mental hospital officer should, if possible, give the recommendation without going to see the patient, but it was doubtful whether a temporary patient could be legally brought to the asylum to see him. The second question was where the patients were to come. He was afraid that the place would be the "lunatic ward" of a workhouse. He asked local authorities, until special small collecting hospitals had been built or beds allotted in general hospitals, to bring patients straight to the mental hospital. He did not think that any more beds would be required, or that the local authorities would be put to any extra expense. Only 17 per cent. of the recent admissions to Cheddleton could possibly have been included as temporary patients. All needs would be supplied by the admission blocks now being built in all mental hospitals. He appealed to members of local authorities where the mental hospital officer was not a municipal officer not to be too much influenced by their clerks.

The CHAIRMAN remarked that Dr. Menzies had assumed that the approved practitioner must necessarily be something of an expert. This was not so. The clause providing for approval had been inserted by the House of Lords as a safeguard to the liberty of the subject; the recommending practitioner was only required to be someone of acknowledged standing. The kind of man required was that general practitioner of especial experience and capability who was normally called in by his colleagues to give a second opinion.

Dr. T. C. GRAVES observed that under the section a hospital might have to release the temporary patient who was not really fit to go out, but the responsibility did not then rest upon the hospital, any more than it did upon the general hospital in analogous conditions. The classes of patients who, although they were still seriously ill in mind and body, had volition, demanded serious consideration. If it was required to certify a patient he should first be removed from the mental hospital, except when acute mental symptoms dominated, and special reference had to be made to the Board. The aim of the section was to avoid certification, but in some cases the health of the patient demanded it. When patients recovered health they were not as a rule disposed to quarrel with the means by which they had recovered it.

MENTAL AND VOLUNTARY HOSPITALS.

Mr. F. L. BLAND, Chairman of the Suffolk Committee, spoke of the practical difficulties of coördination. It was for the layman to secure close coördination between the mental hospitals and the voluntary hospitals in the area. Most of the voluntary hospitals were short of money and situated in the middle of big towns—not the best place for mental patients. Their sites were very often not large enough for rebuilding. Financial assistance would be refused as the thin end of a bureaucratic wedge. Nevertheless, coöperation was vital not only with the large voluntary hospitals but with the small, in association with which it might be possible to establish out-patient clinics.

Dr. H. DOVE CORMAC thought that the proportion of non-volitional patients was much less than 17 per cent. He asked whether it was necessary to examine patients every day to see if they had recovered volition and, if they had, whether it was necessary to inform the Board or record the fact in any way at the start of the 28 days' interval. He asked whether the usual report had to be sent to the Board at the end of the first week after admission. He had found the general hospital to be, on the whole, inimical towards the mental hospital.

Dr. J. MIDDLETON MARTIN said that the Gloucestershire County Council had satisfactorily coöperated with and contributed to its voluntary hospital. He asked whether the omission of any provision for the local authority to send a patient into single care had been intentional.—The CHAIRMAN replied that it had been intentional, because no such need was anticipated.

Dr. J. F. DIXON foresaw the disappearance of the voluntary system, but recommended an expectant and hopeful attitude.

Councillor W. LOCKE, J.P. (Newcastle), said that the man in the street knew nothing of the advantages of the Act; he knew that his family did not come into the National Health Insurance scheme, and wondered if he would have to pay for their mental treatment if they were passed on through the public assistance committee to a general hospital or mental hospital. Publicity was essential.

Dr. R. W. GILMOUR advocated the voluntary system, because the patient's relatives nearly always desired to retain control. It would be unfortunate if matters could not be arranged with relatives independently of the Lunacy Act.

Dr. MARY BARKAS warned the meeting not to confuse the temporary patient with the borderline case, who was eminently suitable to be a voluntary boarder. Lay committees should realise that the non-volitional patient was essentially the acute case, and as disturbing to voluntary boarders as the most advanced and degraded chronic patient. Temporary patients needed the most expert nursing and medical attention; they were not cases for students to experiment on, or for junior house physicians to treat. They should not, for the sake of eye-wash, be denied the expert treatment which only a mental hospital could give, and accommodated in what would be very little different from the present workhouse infirmary observation ward. The ideal institution was perhaps a clinic such as the Maudsley, in close touch with a large general hospital, but this was only possible in very large centres, and could not cover the requirements of a scattered and poor community. She disliked the institution of visiting justices. She feared that if the mental hospital officer were the person to grant the recommendation he would always be regarded with suspicion by voluntary boarders.

Councillor Mrs. EVA HARTREE (Cambridge) said that the public could best be educated through voluntary educational societies. The only men's societies of the kind she could think of were the Rotary Clubs and the Y.M.C.A., but there were numerous institutions for women.

Dr. P. T. HUGHES recommended that the public assistance committee should start a neurological department in a convenient workhouse infirmary in consultation with mental hospital officers. Otherwise the county council could approach the general hospitals and be responsible for the cost of the new buildings.

Mr. S. J. F. MACLEOD, K.C., counsel to the Board, dealt with some of the legal points that had been raised.

REVIEWS AND NOTICES OF BOOKS

Old Age: the Major Involution: the Physiology and Pathology of the Aging Process.

By A. S. WARTHIN, Professor of Pathology in the University of Michigan. London: Constable and Co. 1930. Pp. 199. 15*s*.

The Creed of a Biologist.

Same author and publisher. Pp. 61. 7*s*. 6*d*.

THE appearance of a book on old age by a pathologist of the standing and experience of Prof. A. S. Warthin is naturally something to which we should look forward with a lively anticipation of sound observation and wise deduction. Nothing is, in fact, needed more in pathology than a careful analysis of the ageing process in man, based on the ascertained facts of morbid anatomy. Now that men and women live so long, medicine is concerned more and more with the reactions to injury of bodies which have passed their prime and are in one way and another already more or less decayed. We want, therefore, very much to know exactly how the body at 60 and at 90 differs from the body at 25 and, at the other end, why few people can play Rugby football after 30, and why it is remarkable that Tilden should win the lawn tennis championship at 37. Prof. Warthin's account helps us very little to understand these things, and, frankly, we find it disappointing. Of facts there are very few; spermatogenesis is dealt with in some detail, but for the most part we look in vain for the concrete results of Prof. Warthin's autopsy experience. We should be glad, for instance, to know the numerical basis for the statements on pp. 41–42 that the increase in the sizes of viscera between 30 and 40 are due to hypertrophy rather than hyperplasia. There is a strange inconsistency between the statement on p. 147 that all the examples of intrinsic senile death which Prof. Warthin has personally examined were due to myocardial atrophy and inadequacy, and that on p. 157, where he says "death in man results from the death of the central nervous system, which always dies first." On p. 82 he says "the functional curve for the central nervous system rises continuously from birth until about the seventieth year," and on p. 83 he affirms that at the time when senescence is first perceived "the only function curve that shows any decided decline is that of the reproductive function." He nowhere considers the capacity to do muscular work of a refined and coördinated kind—e.g., to run—as a function worth consideration, though there is no human capacity on which man depends more for his survival.

The book, as we read it, is not a serious contribution to pathology but a bright and readable exposition of the simple fact that old age is bound to come and cannot be avoided. It can be understood better if it is read in conjunction with another book which Prof. Warthin has recently published—"The Creed of a Biologist"—in which he preaches that the whole duty of man is to select a wife on the best eugenic principles, have three or four children, and bring them up properly. From that point of view the demonstration that tissues isolated by themselves in artificial culture are immortal, senescence being a function of the body as a whole, is immaterial, and Prof. Warthin brushes it on one side as meaningless.

Treatment of Chronic Arthritis.

By A. H. DOUTHWAITE, M.D., F.R.C.P., Assistant Physician and Physician in charge of the Massage Department, Guy's Hospital. London: Jonathan Cape. 1930. Pp. 127. 5*s*.

So much has been written on arthritis that it is refreshing to find a physician approaching the subject from a different angle—that is to say, with a full appreciation of the important part the surgeon plays in a condition which can be considerably relieved by appliances, manipulations, and occasional operations. The opening chapters are conventional, the sections on pathology, ætiology, and clinical features following the inevitable familiar course; a clear distinction is made between infective arthritis and rheumatoid arthritis. If every doctor read and assimilated this teaching, possibly healthy teeth and tonsils would not be so ruthlessly removed from obedient owners. Again, the division of rheumatoid arthritis into three stages is most useful, with a suitable line of treatment indicated for each stage. There can be no doubt that much harm is done by applying the same treatment to the condition, whether it be active, subacute or chronic, and incidentally the patient's sufferings may be much increased. In discussing treatment the author suggests that deep X ray therapy in the treatment of osteo-arthritis has possibilities that have not yet been fully explored. He suggests a method for applying thermal treatment which is little known but is well worth considering—namely, the painting on of layers of hot wax. For vaccines Dr. Douthwaite has little use, and he considers their administration unjustifiable in the absence of sepsis; in his view "probably the greatest objection to vaccine therapy is that it deludes the physician and patient alike into the belief that something active is being done for the disease, which in the meantime pursues its remorseless course."

Throughout the work notes are introduced on recent research into arthritis, and the reader is thus made familiar not only with modern methods of treatment but with the investigations being made on the biochemistry and pathology of the arthritides. This book can be warmly recommended.

Les groupes sanguins schémas et applications pratique.

LA TRANSFUSION SANGUINE, TECHNIQUE ET INDICATION. Par PAUL MICHON, Médecin des Hôpitaux de Nancy. Paris: Masson et Cie. 1930. Pp. 120. Fr.16.

THIS small handbook is intended for the practitioner, and is not overburdened with historical or with theoretical considerations. The first portion is concerned with the blood groups, and describes the fundamental facts, the various agents responsible for agglutination, the methods of determining the blood groups, and their biological and medico-legal aspects. The author describes a simple method of testing on a slide, but advocates the use of stock sera of three groups, II., III., and IV., instead of the usual II. and III. The second portion of the book deals briefly with the practical side of blood transfusion—choice of blood donor, technique of the operation, the therapeutic action of transfusion, and

indications. There is also a short bibliography. It would scarcely be possible to compress the subject into a smaller space than this book, but within its limits the essentials are clearly described.

Handbuch der Ernährungslehre.

Vol. II. Spezielle Diätetik der Krankheiten des Verdauungsapparates; Part I., Magen. By CARL V. NOORDEN and HUGO SALOMON. Berlin: Julius Springer. Pp. 460. M.39.

THE title of this book is misleading, for it understates the scope and underestimates the value of the contents. Instead of being a mere treatise on the dietetics of gastric disease, the work is really a portion of a text-book of medicine in which the subjects are dealt with principally from the standpoint of treatment, but with due reference to the essential facts of causation and symptomatology. The section on gastric and duodenal ulcer, which takes up 50 pages, is a typical example. After a short but adequate summary of the ætiology of peptic ulcer, its diagnosis by X rays and chemical tests, and its symptoms, there follows a detailed description of the management of a case, from the time the patient consults the physician for pain or hæmorrhage, through the treatment of the florid ulcer by diet and medicines, until a successful result is obtained by medical or surgical means. Indications for operation, decision as to type of operation advisable, and the after-treatment of ulcer cases, whether operated on or not, are discussed. Gastritis, acute and chronic; alterations of secretion, whether of excess or defect; cancer; dilatation of the stomach, and those conditions classed as nervous dyspepsia, are dealt with in a correspondingly exhaustive manner. The book contains an excellent account of the present-day knowledge of the physiology of digestion in the mouth and stomach; and each section provides a bibliography of the standard works in the various European languages, together with recent papers incorporated in the discussion in the text. The book, which has a good index, will provide accurate and considered information for all workers in the subject of gastric disease.

A Manual of Diseases of the Eye.

Sixth edition. By CHARLES H. MAY, M.D., Consulting Ophthalmologist to the Mount Sinai Hospital, New York; and CLAUD WORTH, F.R.C.S., Consulting Surgeon to the Royal London Ophthalmic Hospital, Moorfields. London: Baillière, Tindall and Cox. 1930. Pp. 475. 15*s*.

THE first English edition of this book appeared in 1906, and since that date there have been more than a dozen reprints or new editions. The teaching is sound and the illustrations adequate, and yet the student who relies exclusively on the information to be derived from this work may have cause to regret that he did not supplement it by attending a good ophthalmic clinic where the teaching is quite up to date. Revision of a work that was quite adequate a quarter of a century ago is a very difficult task if it is desired to keep pace with recent advances in ophthalmology. To give two instances: rheumatism and gout, as well as auto-intoxication from the septic foci in the body are all mentioned as possible causes of iritis, but the student is not told that nearly all the cases that used to be attributed to the first two causes are now generally put down to the third. But in a later chapter, on the ocular manifestations of general disease, this very point is stated clearly in accordance with the modern view. Again, in the chapter on cataract the traditional account of the structure of the lens as consisting of nucleus and cortex is given. It is only in a separate chapter by Mr. Harrison Butler, written especially for this edition, on the slit-lamp and corneal microscope, that we find the modern discoveries of the nature of the lens structure described. Indeed, perhaps the most interesting parts of the book are the chapters specially written for its different editions. The late Mr. Devereux Marshall's account of Dr. Edridge-Green's theory of colour vision is the best to be found outside the latter's own writings; Mr. Sydney Browning's chapter on vaccines in ophthalmology is also excellent. The chapter on squint gives, as we should expect, a useful summary of Mr. Worth's personal teaching on a subject which he has made his own. We observe that in discussing the operative treatment of convergent squint he speaks disparagingly of the operation of recession of the internal rectus muscle by means of a suture, a procedure which, whether or not combined with an advancement, has been growing in popularity with many ophthalmic surgeons in recent years.

Chirurgie des os et des articulations des membres.

Par P. LECÈNE, Professeur à la faculté de médecine de Paris. Avec la collaboration de P. HUET, chirurgien des hôpitaux de Paris. Paris: Masson et Cie. Pp. 591. Fr.140.

THIS work was nearly finished when the outbreak of the Great War delayed its publication, and wisely deciding that his views and practice required modification in the light of his war experience, Prof. Lecène held it up for revision. The result is a treatise on the surgery of the bones and joints of the extremities which is in full accord with the most modern views and practice. The first section deals with the operative treatment of both simple and compound fractures. Operations for malunited fractures, which in this country at any rate constitute the major problems of fracture surgery, receive but scant attention. The section on osteomyelitis is admirably written, but that on bone tumours would have been much improved by illustrations. The fourth section deals with wounds of joints and operations on joints, and is undoubtedly the best in the book, both in text and illustration. The section on tuberculosis of bones and joints is unsatisfactory, since it is limited to operative indications and measures. The section on amputations is good; it includes a useful chapter on artificial limbs. Excisions are dealt with on orthodox lines. The last part of the work is devoted to the surgery of bone and joint deformities, and is far too short to do justice to such a wide subject.

The work makes no pretension to being a book on operative orthopædics, for it is deliberately limited to the operative treatment of bone and joint conditions. Within these limits it is very useful, and the author is to be congratulated on the fair manner in which he presents his own views and those of others on the problems concerned.

ST. PETER'S HOSPITAL, COVENT GARDEN.—Lady Ravensdale recently opened a new out-patients' department, pathological laboratory, and nurses' quarters. These improvements, and others in progress or contemplated, will cost £24,000.

THE LANCET.

LONDON: SATURDAY, AUGUST 2, 1930.

OUT-PATIENT CARE OF EARLY MENTAL ILLNESS.

THE Mental Treatment Act, 1930, which becomes law on the first day of January next year, marks a great advance in the attitude of the legislature to mental disorder. It throws upon local authorities and visiting committees many duties which have not hitherto been obligatory and some of which have actually been forbidden. The Board of Control therefore called a conference to discuss the new situation practically, for, as the Chairman of the Board pointed out, this is no time for vain regrets that the Act is not moulded nearer to the heart's desire of the psychiatrist. Compromises were inevitable if the Bill was to become law, and the duty of experts now is to cultivate the ground that has been gained and to educate public opinion so that further concessions may be justified in the near future.

Typical of the spirit of the advance is the clause which empowers local authorities to make arrangements for the treatment of out-patients, and on this the Conference heard many of the opinions reported in THE LANCET.[1] Hitherto, as Prof. G. M. ROBERTSON remarked, visiting committees and medical officers have been concerned with the care of the certified; in future they are to be responsible also—and even primarily—for the prevention and early treatment of mental disorder. To accomplish this task successfully two things are essential: the confidence of the patient and the coöperation of the general practitioner. As Dr. T. S. GOOD and Dr. R. W. GILMOUR pointed out, the patient is always terrified. He describes his fear as the fear of going mad, but is often unable to explain what this means. Behind it lies the fear of being "shut up." That fear must be expelled before anything can be done. For this reason the general consensus of opinion was in favour of receiving mental out-patients at general hospitals. Once they have seen the psychiatrist there and realised his power to help, they will gladly see him again elsewhere, even at a mental hospital. Often enough they will be quite willing to enter a mental hospital under his care. The out-patient department, as Dr. GOOD observed, is the source of the voluntary boarder. Thanks to the new Act, medical superintendents will no longer have the painful experience of having to refuse admission to early cases until they have become so much worse that they are certifiable. Dr. R. EAGER said frankly that he had found the old Act a great obstacle to the early treatment of mental disease. Another cogent reason for making the psychiatric clinic part of the general hospital out-patient department is that advice and treatment are there available for any part of that complex organism which the psychiatrist must never forget to view as a whole. A difficulty in rural areas is the distance that some patients have to travel to reach a large hospital. Sir WILLIAM LOBJOIT suggested the cottage hospital as a solution of this problem, while other speakers recommended that travelling expenses should be provided; in Exeter this is done out of a benevolent fund. To ensure the interest of the general practitioner Dr. GOOD advised the psychiatrist to go about among his professional brethren, while every speaker emphasised the importance of writing to doctors who send patients to the clinics, giving them a full report and full instructions. As Dr. A. A. W. PETRIE pointed out, the local practitioner wants to be told just exactly what to do with the mental cases that remain under his care, and, as Prof. ROBERTSON said, simple physical measures are often adequate treatment but will not be adopted unless advised by someone with authority and experience. In Worcestershire, according to Dr. P. T. HUGHES, the local profession is anxious for the establishment of clinics, while other speakers admitted regretfully that the practitioner was apt to be as suspicious and mediæval in his attitude as the laity. This difficulty, at any rate, is likely to die out, for the undergraduate of to-day is showing much interest in psychological medicine.

To local authorities the economic aspect of this problem is inevitably of great importance. The general opinion was best summed up by Sir HUBERT BOND, when he said that in all the realm of medicine no better value could be obtained for money than in the psychiatric out-patient clinic. For the establishment of a clinic nothing is needed save a waiting-room, a consulting-room, a doctor, and a nurse. The services of doctor and nurse should cost nothing, as they should be regarded as part of the duty of the staff of mental hospitals. The hospitals should be made to realise, said Dr. A. T. FORRESTER, that all that is asked of them is chaperonage. As soon as the clinic is established, however, the need for beds at once becomes apparent; these can be provided in mental hospitals if chronic cases are transferred to poor-law institutions under the Local Government Act, 1929, but an even better arrangement—most speakers felt—would be for the general hospital to allot beds to their psychiatric clinic. Many apparent objections to this scheme have been shown to be groundless by the experience of the Middlesex Hospital, where functional nervous cases, including even violent and suicidal patients, have been successfully nursed by the ordinary staff in the general neurological ward. Another great need of the clinic, and one involving small expenditure, is the social worker. Miss EVELYN FOX, emphasising the necessity for a specially trained and experienced woman, said that the Central Association for Mental Welfare is proposing to arrange for the provision of these helpers to local authorities. Finally, and most important of all, comes the problem of the personality and training of the psychiatrist. On that everything depends. Dr. J. R. LORD, pleading for better psychiatric education, said that patients had had far too much patting on the back and simple physical treatment.

[1] THE LANCET, July 19th, p. 137.

They required the most skilled psychological handling and in that way alone would the clinic prove a real saving of money. Without it the pessimist, who said that the numbers saved from certification would be small, might indeed prove right. Each new case needs about an hour for satisfactory examination, and it is impossible for half a dozen medical officers from the county mental hospital to serve clinics for the whole area. Birmingham University is hoping to provide a training centre in psychiatry for practitioners and any of the organised clinics will be glad to receive doctors for training, but there is undoubtedly an inadequate supply of reapers for the harvest which is ready. The handling of early mental disease is not a matter that can be learnt from books. While there must obviously be some who are unfitted for the work, Sir HUBERT BOND enunciated a great truth when he said that the man who wants to do it, but is appalled at the difficulties and his own inadequacy, is the man who should go ahead, for he will do well.

BACTERIAL VARIATION.

IN the early years of bacteriology bacteria were supposed to be extraordinarily variable and capable of a series of transformations which no one would believe in nowadays. The allegations that a bacterium was a stage in the life-history of a higher fungus or that it might change into an alga no doubt originated in imperfect methods and impure cultures. As a proper corrective and in the necessary insistence on a rigid technique opinion swayed too far, as we see now, in the other direction; even mild pleomorphism became suspect and every species was supposed to conform to a certain fixed set of characters. Bacteria became, indeed, about the least variable group of living things, which would be very remarkable if it were really the case, for they occur in larger numbers and multiply faster than any other animals or plants. This view did not, of course, actually represent the facts of observation and experiment, and in the last 20 years, since bacteriologists have attended to the matter and observed what they saw, it has been realised that bacteria vary freely in various directions in ways which are mostly ill-understood. It is timely that the last volume to be issued (Vol. I.) of the "System of Bacteriology," published under the auspices of the Medical Research Council, contains a critical survey of the subject by Dr. J. A. ARKWRIGHT, who has himself contributed so much to the elucidation of the variations of meningococci, dysentery bacilli, and the typhoid group.

Recognisable varieties fall naturally into two large groups: those which are temporary, due to the environment, and will revert to the normal standard as soon as standard conditions of life are resumed; and those which are relatively permanent and heritable. It is this second class which is of particular interest and importance. They arise definitely and more or less suddenly and they are not easily reversible; hence they are often called "mutants," on the analogy of the apparently similar genetic changes which occur in higher animals and plants. The term is not a good one in bacteriology and is best avoided, since by implication it connotes a chromosomal constitution which has not yet been seen in bacteria. Practically all the perceptible characters of bacteria are known to show these hereditary variations—the shape, flagella, capsule formation, the form of colonies on solid media, the mode of growth in broth, the fermentation of carbohydrates, the formation of indol, virulence, antigenic properties, and so on. The definition of a "species" is often difficult, as Sir FREDERICK ANDREWES points out in another chapter of the same volume, but there is no doubt that the criteria of differentiation are to be found in the assemblage of characters possessed by any bacterium rather than in any single quality. Any one of these characters may vary and several may vary together, but for all that there is no clear instance where variations have, as it were, changed one "species" into another. The plague bacillus hardly differs from the pseudotubercle bacillus except in its pathogenicity, and the two are quite likely variants of what is essentially the same thing; since, from the human point of view, one is important as a pathogen and the other negligible, they have been classed as two "species." But such cases are very rare and the study of variation has given no support to the idea that one kind of bacterium may be changed into another. The pseudotubercle bacillus may possibly be a non-pathogenic form of the plague bacillus, but the transformation of one into the other has never been observed. Practical considerations do, however, arise. The non-pathogenic variants known as "rough" forms are generally found to appear in old cultures under conditions where some form of degeneration would be, a priori, not unlikely: the virulent "smooth" forms are commonest in cultures recently isolated from the body. The change from smooth to rough has often been seen, that from rough to smooth much more rarely. But it seems quite likely that the rough type represents the wild or saprophytic form of the species, and that its acquisition of parasitic virulence is associated with the change to the smooth type. Hence we have the obvious possibility of the appearance of a pathogen apparently de novo. Some of the hereditary variations are adaptive in the sense that they are caused by and distinctly related to something in the environment; the typhoid bacillus, for instance, "learns" to ferment dulcite by growing on media containing dulcite. So we may suppose that the acquisition of the parasitic habit is caused by coming into contact with a specific live animal. And under certain conditions a change from rough to smooth has been observed in these circumstances.

Our only regret about Dr. ARKWRIGHT's account is that he has not enlarged upon the more general biological implications of his facts. Owing to their exceptionally quick multiplication bacteria form unique material for evolutionary studies, and this is only partly offset by the impossibility of examining a population individually. Still,

it seems that adaptive variation is among their possibilities; if that is so, the effects of progressive selection become almost impossible to study. And the interesting consideration arises whether selection and adaptive variation are not really the same process.

THE FATE OF THE ROYAL VETERINARY COLLEGE.

THE position of the Royal Veterinary College, as revealed last week in the House of Lords (see p. 274), is a discredit to the nation. Lord HAREWOOD said, giving figures as well as facts, that many of the buildings were dilapidated and irreparable; that the money available for acquiring the site, for rebuilding, and endowment was a sum which, even with the large assistance promised by the Government, would be inadequate; that the chances of the College authorities raising the further sum needed, including the automatic increase of Government assistance, were hopeless; and that unless a larger offer should come from the State further students could not be taken. In other words, he showed that the College would cease to exist when the curriculum of the existing students is completed. This is a state of affairs that seems almost incredible in Great Britain, and in connexion with the capital of the Empire. Our national claims for pre-eminence in the scientific breeding of agricultural stock are not in dispute, but none the less this important school for the appropriate training of veterinary surgeons is in peril of decease. For Lord DE LA WARR, as the mouthpiece of the Government, was unable to hold out any hope of increased assistance.

There never was a time in the history of medicine when veterinary study, whether in its widest or most detailed conception, was more directly allied to the science of medicine than to-day. It is unnecessary to point out how deeply and how broadly modern medicine, alike from the preventive and curative aspects, is allied to the right comprehension of the physiology and pathology of the animal world. Such an imminent threat to the progress of veterinary medicine is a matter that concerns the whole of the medical profession; much medical and surgical research will be impeded, as will be the progress in different directions of public health development and the organised study of dietetics. At the Royal Veterinary College the students get a thorough clinical experience from the care of thousands of sick animals which are brought to the College for diagnosis and treatment; and no other College can boast of equal facilities for enabling the students, as and when their equipment reaches the proper level, to take an active part in dealing with their animal patients. They have the opportunity to see, diagnose, and treat many obscure conditions in a way that is only possible at an institution which is the focus of large endeavours. The statistics of the operations performed with good result would make surprising reading for most people, while this average of success implies labour and resourcefulness that should be needless, because of compulsion to employ inadequate apparatus. Stock and special vaccines are regularly prepared at the College, there is prompt post-mortem examination of carcasses submitted for the purpose, and pathological specimens are daily reported upon. All this work is in successful course under poor conditions, proving that the Metropolis is a fitting centre for such activities, even when they are carried on without due equipment.

While setting out the hope that some way will be found of avoiding the disgrace to us all of allowing the College to remain in its present critical plight, it is pertinent to point out that its transference, for economical reasons, to a site in the country would not meet the case. Removal from a centre where large and variable clinical material is always forthcoming and where, if the money were provided, facilities for teaching and for research would be at their highest level, must be a retrograde step.

CANCER: A GEOGRAPHICAL SURVEY.

APART from the valuable statistical reports on cancer, of which the latest is summarised on p. 260, several memoranda have been issued with the object of transmitting to local authorities information collected by the Departmental Committee on Cancer of the Ministry of Health. Circular 1136, just published, differs from its predecessors in demanding instead of giving information. The Minister hopes that a more complete knowledge of the reactions between cancer and any local community may provide a basis upon which, after due consultation, to take local action. The tendency to delay seeking treatment until the opportunity of permanent relief has passed must be combated systematically. In the presence of cancer of those organs where an abnormality gives rise to some obvious sign or symptom the reasons for fatal delay, whether physiological, psychical, economic, or social, should be ascertained and met. In other organs, notably some of the internal organs, cancer does not at the onset give rise to signs which are easily recognisable, and here the chief prospect of good lies in securing improvement of the facilities for diagnosis. The treatment and nursing locally available for inoperable cases also requires consideration. As to the proposed methods of investigation, the local authority is asked to devise means for establishing contact with the patients. The Ministry anticipates that at first the field of inquiry will be limited to patients seeking treatment at hospitals administered by county and county borough councils and at voluntary hospitals, no difficulty being expected in securing friendly coöperation here. We do not ourselves see how it could be extended further without violating confidence. A questionaire in the appendix indicates the general lines on which inquiry might be made. Particulars about the patient himself, his history before and after coming under the observation of the local authority, and his subsequent history, whether or no radical treatment has been undertaken, should be ascertained. We welcome this official encouragement of geographical research, because it may give enlightening results. At the very least it should show where a further distribution of radium is required and where better provision is needed for the succour of inoperable cases.

ANNOTATIONS

HEART DISEASE AS A SURGICAL RISK.

THE association of heart disease with conditions requiring surgical interference calls for some of the most difficult decisions in medicine. On the basis of 414 cases an attempt has lately been made[1] to assess the risk in different types of cardiac disease. Major and minor operations of all types are included in the series, and the various forms of anæsthesia are not differentiated. The deaths are classified as "unexpected" and "inevitable," the latter including cases in which operation gave the only hope of recovery, although the patient was expected to die from causes other than heart disease. Consideration is chiefly given, of course, to the deaths from unexpected cardiac failure, probably caused by the operation. Among 120 patients who had valvular disease the unexpected mortality was only 2·1 per cent., while among 138 with chronic myocarditis, and 87 with permanent auricular fibrillation, it was only 4·9 and 3 per cent. respectively. An unexpected death occurred in a group of 17 cases of paroxysmal flutter or fibrillation, and one among 11 cases of syphilitic aortitis and incompetence. Twenty cases of coronary thrombosis provided eight unexpected deaths, but in five of them the diagnosis was overlooked before operation, and in seven the attacks followed operation. There were three deaths among 38 patients who had signs of failure before operation, and four among 12 patients who developed failure after operation. Out of 55 with a combination of nephritis and heart disease, eight died unexpectedly, which suggests that this combination adds greatly to the operative risk. A study of the incidence of raised blood pressure showed that it was the nephritis rather than the raised blood pressure which was dangerous, for patients who had a very high blood pressure were mostly good operative risks. An analysis of age incidence shows that the general opinion that the surgical risk becomes greater with advancing age is true for cardiac patients. The gist of the reviewers' conclusions is that in most forms of heart disease the surgical risk is not appreciably increased, but they emphasise the importance of accurate preoperative diagnosis and treatment.

CHARCOT'S ARTHROPATHY.

ELSEWHERE in this issue Dr. Harold Avery reports a case of Charcot's arthropathy affecting a site not hitherto described, the sacro-iliac joint. There is a widespread impression amongst clinicians that the Charcot joint is a somewhat mysterious entity which eludes explanation. It is true that in some ways—in the grotesque disorganisation of the affected joint, for instance—the condition is peculiar. Yet a recent paper by E. J. S. King[2] of Melbourne, suggests that these peculiar joint changes can easily be interpreted in terms of fundamental pathological principles. It is generally agreed that the primary ætiological factor is damage to the sensory nerves supplying the joint and, as the precise level at which the sensory pathway is interrupted is of no consequence, Charcot's disease is found in conditions as widely apart in nature and situation as peripheral neuritis and syringomyelia. Anæsthesia is not, however, the sole factor. Experiments on animals have shown that the anæsthetised joint remains healthy as long as it is protected from injury, but that subsequent trauma produces typical Charcot's disease. R. Leriche made some interesting observations on the fate of fragments of bone implanted into the joints in animals. Dead bone gave rise to no very striking reaction, whereas living implants provoked an extensive reaction in the surrounding tissues, characterised by marked polypoid thickening of the synovial fringes and extensive new formation of cartilaginous and bony tissue. A similar hyperplasia, almost sarcomatous at first sight, is commonly seen in the process of callus formation after fractures, the connective tissue cells having regained their embryonic power of forming cartilage and bone. King has found this same exuberant metaplasia around the joints in Charcot's disease, and in one case an isolated fragment of necrotic bone occupied the distorted joint cavity. From these considerations he is led to suggest that Charcot's disease is merely an exaggerated form of osteo-arthritis in which the stimulus to the inflammatory reaction is supplied by the products of dissolution of small fragments of necrotic bone. The reaction of the tissues is exaggerated simply because the anæsthetic condition of the joint permits frequently recurring trauma, of which the patient is unaware.

A MEDICAL FILM LIBRARY.

Messrs. Kodak have now in London the nucleus of a valuable library of medical films. The potential importance of cinematography in medical education was early appreciated, and a surgical operation was filmed at the West London Hospital as long as 25 years ago. With improvements in apparatus and technique it has now become possible to record a wide variety of subjects. The Kodak library at present contains about 60 films made in this country and abroad. They are classified under various headings—e.g., anatomical, neurological, obstetrical, surgical, physiological, dental, and veterinary—and they will be found increasingly useful by demonstrators and teachers. Some are intended to show to students the detail of accepted technique; others enable practitioners to study the methods of distant clinics. As an example of the first group we may mention a film on blood transfusion which shows the surgical procedure in such detail that several experienced donors collapsed on seeing it. A border-line example is a record of prostatectomy by Sir John Thomson-Walker, which is an undoubted triumph but would probably be of greater use to the well-informed than to the ignorant. For the surgical student the advantage of the cinema is that it is capable of showing every step of a complex operation; he is presented with a full account of the battle rather than occasional glimpses of a stricken field. Since there is no advantage in photographing an actual operation—and many disadvantages—we believe that in this branch the best results will often be got by taking films from models rather than the living subject. As the value of instructional films is appreciated it will become worth while to spend time and money on making explanatory records for students, and to many minds they will

[1] Butler, S., Feeney, N., and Levine, S. A.: Jour. Amer. Med. Assoc., July 12th, p. 85.

[2] Brit. Jour. Surg., 1930, xviii., 113.

be far more useful than text-book descriptions. The Kodak library already contains diagrammatic films, and they will convince the sceptical. Impressive, but possibly less successful from the learner's standpoint, are the films where natural processes are accelerated. The development of a rabbit ovum at 360 times the normal speed has an air of liveliness which seems scarcely proper even in a rodent.

We hope that medical societies and similar bodies will make abundant use of the library, and notably of the films demonstrating foreign methods—e.g., the management of normal birth in the gynæcological clinic of Berlin University. Special attention may perhaps be drawn to a 52-minute reel which shows the diagnosis and treatment of infections of the hand and has been made under the authoritative direction of Dr. A. B. Kanavel, of Harvard. While it appears that Messrs. Kodak are helping to make travel unnecessary, the inclusion of such films will do much to disprove the sublime saying that "to travel is to discover that everybody is wrong."

The catalogue is obtainable from Kodak House, Kingsway, W.C.2.

THE PATHOGENESIS OF ECZEMA.

SINCE the early days of scientific dermatology, research has eliminated from the conditions, formerly grouped loosely together as "eczematous," a host of disorders of the skin, by discovering their true ætiology, and placing their pathogenesis and treatment on a secure foundation. In this category are to be found the skin ailments due to fungi and yeast, seborrhœic dermatitis, trade "eczemas," and those which exhibit a special idiosyncrasy to such a variety of noxæ as primula, turpentine, cat fur, and so forth. After eliminating them we are left with a group in which no demonstrable cause or "antigen" is found to account for the peculiar inflammatory symptoms for which the name of eczema must still serve. Examples of typical reactions were given by Prof. W. Scholtz in a paper communicated to the German Dermatological Congress at Königsberg.[1] For instance, a little iodoform gauze applied to a wounded finger produces on the following day a crop of vesicles at the site of application. The patient has developed iodoform dermatitis, which subsides on withdrawal of the dressing but will recur in loco whenever iodoform is reapplied. The patient is said to have an idiosyncrasy to iodoform, but is not affected by any other irritant such as mustard oil, croton oil, or capsicum. He remains well unless he comes in contact with iodoform. Another patient reacts to iodoform in the same way, but the dermatitis spreads in spite of withdrawal and careful removal of all traces of the iodoform from the area of local contact to the hand, forearm, and other places, and after subsiding may, perhaps, light up again and again either locally or in distant areas. On inquiry one may perhaps elicit the fact that the patient has had previous attacks of a weeping skin eruption, and is sensitive to a number of skin irritants. The diagnosis in this case is iodoform dermatitis in an "eczematous" subject, and the outlook in the two cases is entirely different. In the first we are entitled to assume that the patient will remain well so long as he avoids iodoform, while in the other we can never be sure how long he will remain free from the tiresome symptoms of his eczematous diathesis. The facts are still further complicated by the existence of a third type of reaction. This concerns the individual—usually a workman—whose reactions are strictly localised to the hands, which in the course of years of exposure and traumatism of all kinds eventually become sensitive and react with the production of eczema to even the mildest irritants; or the trouble may arise when the hands are used in any light employment, but remain well if protected in gloves or kept greased with salve. Similar examples of local susceptibility are met with on the face, the scrotum, or on the shins, and in such cases we have to deal not with a sensitiveness to any particular irritant (allergy), but to a presumed anatomical or biochemical alteration of the epidermis of the affected area. In thus subdividing the manifest examples of a complex disease we must not lose sight of the fact that there are individuals who cannot be accurately grouped in any one of the three specified classes. There must always be intermediate and "passage" cases in any system of artificial classification.

The whole question of eczema and its causation is of the greatest interest. Among those who are engaged on its investigation the name of Dr. Bruno Bloch, of Zurich, stands prominent at the present time. He has succeeded in reproducing the complete clinical and histological picture of eczema in guinea-pigs, by introducing by injection (or local application) the ethereal extract of the irritant substance of *Primula obconica*. This is actually the first occasion in which a permanent allergic cutaneous reaction of the skin had been successfully conveyed to animals, and the accomplishment is likely to lead to a material progress in the therapeutics of eczema. The details of his work, which have already become widely known, will form the substance of a paper to be read at the forthcoming International Congress of Dermatology to be held at Copenhagen. Prof. Darier, of Paris, will be the principal speaker, and his address will be followed by that of Prof. Jadassohn, of Breslau, while those taking part include such well-known names as Bloch, Oppenheim, Sabouraud, and Whitfield. After many years in which progress has been slow, it seems that at last this most important problem in dermatology is on the way to solution.

[1] Scholtz, Prof. W.: Dermat. Woch., 1929, lxxxix., 1143.

HISTORICAL ADDITIONS TO THE HUNTERIAN MUSEUM.

THE historical series of the Museum of the Royal College of Surgeons of England has been enriched by several gifts. Among these is a mahogany medicine chest that formerly belonged to Dr. Edward Jenner, the discoverer of vaccination, with most of its fittings intact. This beautifully made little cabinet is of the type commonly found in doctors' surgeries about the end of the eighteenth century. The upper part, which has a hinged lid, is fitted with four wide-mouthed bottles with metal caps for holding powders, and in a separate compartment is a pewter medicine measure, a small pewter funnel, and two palette knives with silver handles. Here, also, is a receptacle for the scales and a box with a sliding cover for the weights. In the front compartment, which opens with a door, are five stoppered bottles of four-ounce capacity, and below are seven drawers with ivory knobs. Five of these are divided into four compartments with sliding lids for containing powders, one of which still contains some compound senna powder, a remedy much in vogue in Jenner's time. The two drawers below are each fitted with four glass jars for ointments, and contain the remains of yellow basilicon, zinc and spermaceti ointments. Another compartment, which occupies the back of the cabinet, contains

eight stoppered bottles for liquids, each of eight-ounce capacity. This relic is fully authenticated.

Another interesting gift is a fine compound microscope that belonged to Sir William Bowman, the first President of the Ophthalmological Society of Great Britain, presented by his grandson. It was used by him in making his classical discoveries. It is one of the early massive achromatic instruments of the last century, and was made by Hugh Powell in 1840. A case of ophthalmic instruments used by Sir William has also been presented. An extraordinary ju-ju or fetish that was taken from a notorious witch-doctor at Ohitsba, in Nigeria, which mainly consists of human skulls and bones, has been added to the collection. It is made up of a "mass" of vegetable matter (the witch-doctor's medicine), bound together with fibre and surrounded by a circle of eight human skulls, one of which has an indentation probably caused by a blow. Dr. Aly Bey Ibrahim, of Cairo, has given two old native Egyptian trusses, made and used in that country about the seventeenth century. These primitive appliances are made of hoop-iron, crudely covered and padded with black and white cotton. A palm-leaf manuscript from Ceylon, enclosed in wooden covers, decorated in red and white, is the gift of Dr. Casey Wood. The leaves are inscribed with medical recipes, and notes given by a senior native physician to his pupils, and recorded by the student from time to time.

The collection of amputation saws has been augmented by a specially arranged series showing the development of the instrument from the flint saw used by the ancient Egyptians about 4000 years ago. It includes examples of the early bow-saw employed in the thirteenth century, saws used in the time of Ambroise Paré, and specimens of the tenon-saw of the eighteenth century used by Percival Pott, and also shows the improvements made in the instrument down to the close of the nineteenth century.

THE MENTAL RADIO.[1]

Mr. Upton Sinclair's books have acquired and deserved a large circulation, but he breaks entirely new ground in writing of telepathy. His wife, however, having discovered in girlhood that she possessed some power of mind-reading, the opportunities for an intimate study of telepathy thus offered to Mr. Sinclair have produced in him a complete conviction the spirit of which will be found throughout the book as shown in these words. "For the past three years," he says, "I have been watching this work, day by day and night by night in our home. So at last I can say that I am no longer guessing. Now I really know. I am going to tell you about it, and hope to convince you; but regardless of what anybody can say, there will never again be a doubt about it in my mind. *I know.*" Prof. William McDougall, who provides an introduction to the book, is sympathetic, for he writes: "Mrs. Sinclair would seem to be one of the rare persons who have telepathic power in a marked degree and perhaps other supernormal powers. The experiments in telepathy, as reported in the pages of this book, were so remarkably successful as to rank among the very best hitherto reported. The degree of success and conditions of experiment were such that we can reject them as conclusive evidence of some mode of communication not at present explicable in accepted scientific terms, only by assuming that Mr. and Mrs. Sinclair either are grossly stupid, incompetent, and careless persons, or have deliberately entered upon a conspiracy to deceive the public in a most heartless and reprehensible fashion."

The very first illustration of what Mr. Sinclair calls "a mental radio" does appear to close the usual avenues of doubt. A man "agreed to make a drawing of any object he might select at random and then to sit gazing at it concentrating his entire attention upon it for a period of from 15 to 20 minutes." The obvious ambiguity in the quoted sentence has, it seems, no bearing on what happened. "At the same agreed hour . . . . Mrs. Sinclair was lying . . . . forty miles away . . . . in semi-darkness with her eyes closed, employing a system of mental concentration." As a result she took pencil and paper and wrote, with the date, in six words exactly what the drawing would be found to be. And so it was. The book continues to set out in illustration, successes, partial successes, and failures in a series which are summarised by the author thus: "I have now given nearly all of the 65 drawings which I call 'successes' and about half of the 155 which I call 'partial successes.' This, I think, is enough for any purpose. No one can seriously claim that such a set of coincidences could happen by chance, and so it becomes necessary to investigate other possible explanations." Prof. McDougall's verdict is that Mr. Sinclair's book will amply justify itself if it leads readers to undertake carefully and critically experiments similar to those described.

[1] Mental Radio: Does it Work and How? By Upton Sinclair. London: T. Werner Laurie. 1930. Pp. 211. 8s. 6d.

THE BLOOD-SUPPLY OF THE LIVER.

It would be generally thought that the blood-supply of the liver is pretty well understood, and in a rough way this is no doubt true. But we gather from a paper by Dr. G. R. Cameron and Dr. B. T. Mayes,[1] on the results of tying the hepatic artery, that there is still a good deal to find out and say on the subject. What, for example, is the precise relationship between the portal vein and the hepatic artery? The portal vein can be injected quite easily from the hepatic artery and a radiogram of a liver treated in this way with lipiodal is very similar to one of a liver into which the injection has been put via the portal vein. No arterio-venous anastomoses between the two sets of vessels could be found within the liver. It appears that the hepatic artery after entering the hilum breaks up into capillaries which supply mostly the walls of the portal vein and the bile-ducts. These reunite into venules which join the venules of the portal vein either in the portal canals or at the periphery of the liver lobules, and it is this conjoint stream which passes into the sinusoids and supplies the parenchyma. There seems to be no justification for the idea, originating and being mostly propagated in pathological circles, that the hepatic artery specially supplies the outer zone of the liver lobule; all parts of the lobule receive the same blood, which varies only in so far as it becomes deoxygenated on its passage towards the intralobular radicle of the hepatic vein. Cameron and Mayes suggest that the hepatic artery does not differ in its general plan from the mesenteric arteries.

It is also clear from the observations and experiments now recorded that the liver receives more than negligible quantities of blood from sources other than the hepatic artery and portal vein. Deprivation of any part of the liver of portal blood leads to a slow disuse-atrophy of the corresponding liver cells; deprivation of arterial blood results in

[1] Jour. Path. and Bact., 1930, xxxiii., 799.

acute necrosis and degeneration. Though ligature of the whole of the hepatic artery leads to necrosis of so much liver that the animal usually dies, yet the necrosis by no means involves the whole liver. The experiments on tying the various branches of the hepatic artery must be considered in relation to the anatomy of the rabbit, which was the animal they used, but it is surprising how much of the artery, especially in young animals, may be made functionless without causing any necrosis at all. Cameron and Mayes found too that, if the whole of the hepatic artery, portal vein, bile-duct, and inferior vena cava above and below the diaphragm were tied, methylene-blue injected into the jugular vein could be seen to enter the liver almost at once. There are no named arteries which could account for this, but it is evident that there is an abundant collateral supply through the diagphragm and from the abdominal connective tissue which is of considerable importance in maintaining the vitality of the liver cells. In a full and scholarly discussion of the literature the authors point out that the results of accidental ligature of the hepatic artery and parts of it in man vary from death to no symptoms, and their results explain the apparent immunity in which some surgeons have been able to rejoice.

PUBLIC HEALTH SERVICES AND THE MINISTRY OF HEALTH.

SOME changes are notified in a circular (No. 1129) addressed to local authorities by the Ministry of Health in the annual returns required by the Minister in connexion with the maternity and child welfare, tuberculosis, and venereal diseases services.

The following returns will be dispensed with: (1) annual returns giving detailed statistics of the work of homes and hospitals for mothers and for children; (2) annual returns giving summary information as to the work performed at treatment centres for venereal diseases, and as to the treatment of these diseases in poor-law institutions and in hostels; (3) monthly returns giving the numbers of patients in residential institutions approved for the treatment of tuberculosis, and the numbers of empty beds, on the first day of each month. On the other hand, returns not previously supplied and now required include:—

Maternity and Child Welfare.—Annual returns relating to any maternity home or hospital provided or subsidised by the local authority, and to the maternity wards in institutions newly transferred to them. Moreover, since the previous Exchequer grants to voluntary associations have been replaced by annual contributions from the appropriate local authorities, the returns furnished by local authorities must include the maternity and child welfare work of these associations.

Venereal Diseases.—An annual return (*a*) from medical officers of treatment centres, and (*b*) from pathological laboratories which are approved under the Public Health (Venereal Diseases) Regulations, 1916.

Tuberculosis.—Annual returns of notifications, and of cases remaining on the registers of notifications at the end of each year.

The Minister has also decided to require an annual return showing (*a*) the amount and nature of the accommodation available for the treatment of the sick in institutions transferred to the councils and in general hospitals provided under the Public Health Acts or the Local Government Acts; and (*b*) the use made of the accommodation during the year.

ALLVAR GULLSTRAND.

THE death is announced of Prof. Allvar Gullstrand at the age of 68. He was appointed professor of ophthalmology in the University of Stockholm in 1894, and subsequently professor of physiological and physical optics. In 1911 he received the Nobel Prize for his researches in the dioptrics of the eye, and in the same year he demonstrated the first model of the slit-lamp with which his name will always be associated. This is the instrument by means of which, in conjunction with the corneal microscope, it is possible to examine an anteroposterior section of the anterior part of the living eye, and its use has given us much new knowledge of the structure of the cornea and of the crystalline lens, both in normal and in diseased conditions. Prof. Gullstrand was an honorary member of the Ophthalmological Society of the United Kingdom.

Sir Charles Sherrington, O.M., Waynflete Professor of Physiology in the University of Oxford, and Dr. J. A. Arkwright, F.R.S., honorary bacteriologist to the Lister Institute of Preventive Medicine, have been appointed members of the Medical Research Council in succession to Sir Frederick Hopkins and Sir Charles Martin, who retire on Sept. 30th.

INDEX TO "THE LANCET," VOL. I., 1930.

THE Index and Title-page to Vol. I., 1930, which was completed with the issue of June 28th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

ROYAL MEDICAL BENEVOLENT FUND.—At a recent meeting of the committee 34 grants were made amounting to £515. The following are particulars of some of them:—

M.R.C.S., aged 80, with wife aged 70. Has been in practice for over 50 years, but latterly, owing to increasing deafness, there was a falling off of patients and corresponding loss of income. The daughter, aged 40, looks after her aged parents. The three live on a total income of £184 a year. £150 of this is contributed by a son, aged 39, who is a bank cashier at a salary of £425, and has to keep himself in lodgings. Voted £40.

Widow, aged 51, of L.S.A. who died in July, 1930, aged 71, and who was helped by the fund during the last two years of his life. He was also in receipt of an allowance of £104 a year from another charity, as he was unfit for work and in receipt of the old age pension. The widow has been left with nothing. The allowance of £104 has been discontinued as the widow is not eligible for this help, and the old age pension has been stopped. The widow has obtained a post as companion to an old lady at a salary of £1 a week, without food. Owing to a recent accident and a broken wrist active employment with larger salary is difficult to find. Voted £26.

Widow, aged 63, of M.D. Husband died in 1929, leaving his widow destitute, her only support being her daughter, who is earning 48s. a week. Voted £26. Epsom College has also given a pension.

Widow, aged 55, of M.B. Husband suffered from tuberculosis since 1897, and died in 1919. His money was mostly invested in Germany and has been lost. The widow supported herself by taking in paying guests, but owing to diabetes has been unable to do much work. She has been further handicapped by her son, aged 30, who has congenital heart trouble. The presence of the son in the house has frightened away guests who otherwise would have stopped. Voted £26.

Subscriptions and donations are urgently needed in order that the activities of the fund may be continued and applicants given the help they need. Cheques should be forwarded to the honorary treasurer of the Fund at 11, Chandos-street, W. 1.

MODERN TECHNIQUE IN TREATMENT

A Series of Special Articles, contributed by invitation.

CCCIV.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

PART II.*

Phrenic Evulsion.

EITHER dome of the diaphragm receives its nerve-supply through the phrenic nerve. Destruction of this nerve-supply causes paralysis of the dome and atrophy of the muscle-fibres. As a result of this the dome rises up into the thorax, partially on account of the intrathoracic negative pressure, but mainly because of the intra-abdominal pressure. The maximum rise is not seen until complete atrophy of the muscle has occurred. During respiration paradoxical movements may be seen, the paralysed dome rising with inspiration and falling with expiration. The extent of the rise varies greatly in different individuals, depending on the extensiveness and character of the basal adhesions. It may be as little as 1 or 2 cm. or as much as 7 to 8 cm. The effect of these changes in the dome of the diaphragm is to diminish the size of that half of the chest and so to allow of a measure of collapse of the lung; also to relax all tension from the structures in immediate direct or indirect contact with the upper surface of the dome. The reduction in the size of the hemithorax results in a partial collapse of the lung. In some cases this collapse is mainly confined to the base, but in others it affects the whole lung to such an extent even that cavities in the apex become considerably reduced in size. The abolition of the tonic contraction of the muscle and the relaxation of the strain on adjacent structures abolishes such symptoms as the constant, reiterated, purposeless cough so characteristic of diaphragmatic irritation; it removes the dragging ache and pain associated with basal adhesions; it restores in part the heart and mediastinum displaced by chronic fibroid contraction, and diminishes the tachycardia and dyspnœa which may be an accompaniment of this change.

The realisation of these changes enables one to appreciate how great is the field of usefulness of hemidiaphragmatic paralysis. There is, however, a limitation of this field due to the uncertainty of the amount of rise of the dome. Fortunately the operation is of such comparative simplicity that the risk of this uncertainty is worth taking.

The indications for hemidiaphragmatic paralysis by phrenic evulsion, briefly stated, are:—

(1) For cases of basal tuberculosis. It may also be helpful in basal bronchiectasis, but more often than not the results are disappointing.

(2) For cases of more extended tuberculosis which require additional treatment to arrest the disease. As already pointed out, even cavities in the upper lobe may have their walls approximated as a result of the rise of the dome following evulsion of the phrenic.

(3) As an accessory to artificial pneumothorax: (*a*) when the base is held out by adhesions; (*b*) to lengthen the interval between refills; (*c*) it is said to check the occurrence or recurrence of pleural adhesions; (*d*) to reduce the size of the hemithorax when the collapse is being given up and the lung being allowed to re-expand.

(4) For the treatment of symptoms such as cough, tachycardia, and dyspnœa.

(5) As a preliminary to thoracoplasty.

* Part I. appeared last week.

The original operation of simple section of the phrenic nerve was often a failure. The reason of this is that the nerve originating from the fourth cervical and possibly from the third and fifth cervical roots also, and crossing the scalenus anticus muscle, is not always the sole source of supply. There is frequently an accessory phrenic nerve arising from the brachial plexus, sometimes from the nerve to the subclavius muscle, and not infrequently jointly with the suprascapular nerves. This accessory nerve passes downwards and joins the true phrenic in some part of its intrathoracic course, usually about the level of the first rib.

The destruction of this possible dual source of supply is accomplished by evulsion of the phrenic nerve. The operation is a comparatively simple one, done under local analgesia. The phrenic nerve is reached in the neck through an incision 2 to 2·5 cm. long, made at the outer border of the sternomastoid muscle at about the level of the cricoid cartilage. The phrenic nerve is exposed as it crosses the scalenus anticus muscle; it is divided, and then the distal end is drawn out of the wound. In a successful case of evulsion the whole nerve, including the terminal filaments detached from the diaphragm, will be withdrawn. Often the nerve breaks; but if some 10 to 12 cm. of nerve have been evulsed, hemidiaphragmatic paralysis will have been achieved.

EXTRAPLEURAL PNEUMOLYSIS.

Extrapleural pneumolysis is an operation most often done over the apex of the lung, and is then called apicolysis. A localised collapse of the lung, together with the parietal pleura, is produced by stripping this membrane away from the deep surface of the chest wall. The lung in part retracts and in part is displaced by the operator, and a space is left between the outer surface of the parietal pleura and the chest wall. As the air in the space would soon be absorbed with consequent re-expansion of the lung, it is necessary to fill the cavity with some substance which will maintain the lung collapse. Paraffin, with a melting-point of 110° or 112° F., is one of the substances so used. It has, however, the disadvantage that it may irritate the pleura and cause an extrapleural effusion, the fluid from which opens up a track through the wound and, escaping, carries with it the paraffin. Transplanted fat may be efficacious; on the other hand, it may liquefy and, working its way to the surface, eventually discharge through the skin. Some surgeons use a packing of gauze or of rubber strips which are later removed. The cavity is then allowed to become obliterated by granulation tissue. My own preference is for a living, pedunculated graft, using the pectoral muscles in men and the breast in women.

The indications for the operation are localised lesions with or without cavities, especially those situate in the apex of the lung. It is also used after thoracoplasty to supplement the collapse obtained by this operation when there is a thick-walled cavity which has resisted collapse. The operation is not one particularly gratifying in its results, for which reason it is not often done. There are, however, certain cases for which a localised apical collapse is particularly indicated. For such cases I have recently been trying a localised modification of the extrapleural thoracoplasty. The rib resection in these cases is localised to the first four or five ribs up to the transverse

processes, but the total length of bone resected is considerably more than would be done if one was aiming at collapse of the whole chest wall. For instance the length of bone removed from the first rib is from 3·5 to 4 cm., and of the fourth rib 12·5 cm. or more. This operation of localised thoracoplasty causes no more shock and does not take as long as apicolysis. The risks of tearing the lung are less, as also are the risks of post-operative complications. So far as my experience goes the results are most gratifying and more constant.

Thoracoplasty.

The object of the operation of extrapleural paravertebral thoracoplasty is to obtain collapse of the lung by mobilising the ribs so that they fall in towards the spine and mediastinum, and so greatly diminish the corresponding side of the chest. This is achieved by resecting lengths varying from 2·5 cm. to 12 or 15 cm. from the posterior ends of the ribs right up to the transverse processes. The operation is usually done under a combination of local and regional anæsthesia and of a general anæsthetic. When the disease is extensive the resection must be of the first 10 or 11 ribs, and is then done in one or two stages according to the general condition of the patient, the state of cardiac sufficiency, and the amount of sputum. For disease confined to the upper part of the lung, resection of the first seven or eight ribs in one stage will suffice. Always, however, the first rib must be included, since each rib is slung on to the one above, and so on up to the first.

This operation is indicated in those cases which are not responding to sanatorium treatment, or in which hæmorrhage is a serious or recurring symptom and in which an artificial pneumothorax has failed. In long-standing cases of intense fibrosis with multiple cavitation and sacculation of the bronchi, thoracoplasty is preferable to artificial pneumothorax. The contra-indications are much stricter than for pneumothorax. It is essential that there is no activity of the disease in the opposite lung. Sometimes it is very difficult to distinguish between persistent catarrhal moist sounds at the apex of a lung and the crepitations of activity. Observation of these sounds over a long period alone can help to differentiate between them. The mortality as a result of the operation is about 5 per cent. The results of successful intervention are, however, most gratifying as the collapse is permanent and not a continually varying one, as in artificial pneumothorax. The late results collected by J. Alexander show that 36·8 per cent. are healed and 24·4 per cent. benefit by the operation. Despite the collapse of the chest wall, the resulting deformity is extremely small and not noticeable when the patient is clothed. There should be no interference with the free movement of the arm. The patient, moreover, is even less handicapped than with an artificial pneumothorax, as there is no question of recurring attendance for treatment by refills nor the risk of pleural complications.

Multiple Neurectomy.

The excision of parts of each of the intercostal nerves leads to a paralysis of the intercostal muscles. The effect of this, especially when combined with phrenic evulsion, is to immobilise the corresponding side of the chest wall and to cause slight falling in of the chest wall. The operation has been suggested by Alexander for cases needing a thoracoplastic operation, but in whom there is contra-indication owing to the extensiveness of the disease or the frailty of the patient.

Conclusion.

These operative procedures and the results obtained by them show that surgery has immense value in the treatment of pulmonary tuberculosis. They show also how indispensable surgery has become in supplementing sanatorium treatment, and how essential it is, therefore, that surgical facilities should be regarded as a necessary part of the equipment of every sanatorium.

H. Morriston Davies, M.D., M.Chir. Camb., F.R.C.S. Eng.,
Medical Superintendent, Vale of Clwyd Sanatorium; Consulting Surgeon, University College Hospital.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs. A. W. Cocking and W. E. Heath to be Surg. Comdrs.

Surg. Comdr. G. E. D. Ellis is appointed to the battleship *Iron Duke*, and Surg. Comdr. R. N. W. W. Biddulph to the *Victory* for duty in Portland Dockyard.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. (D) G. K. MacLellan to be Surg. Lt.-Comdr. (D).

Surg. Sub.-Lts. A. Elliott, W. J. Poole, and V. S. Hughes-Davies to be Surg.-Lts.

Prob. Surg. C. Mason to be Surg. Lt.

The following appointments are notified: Prob. Surg. Lt. W. H. Roberts to *Marlborough*, for training; Prob. Surg. Sub-Lt. P. B. Moroney to *Norfolk*, for training.

ROYAL ARMY MEDICAL CORPS.

Lt. F. M. Collins to be Capt.

ROYAL AIR FORCE.

Flight-Lt. H. O. Sumerling is promoted to the rank of Squadron Leader (Dental) on promotion to Major in the Army Dental Corps.

INDIAN MEDICAL SERVICE.

Col. C. A. Sprawson to be Maj.-Gen.

Lt.-Col. J. C. S. Oxley retires.

The probationary appts. of the under-mentioned officers are confirmed: To be Lts.: K. F. Alford (now prov. Capt.), H. S. Waters, J. H. Boultbee, H. T. McWilliams, P. Shannon, H. J. Curran, E. A. Y. Mackeown, W. P. Lappin, B. J. Griffiths, G. Milne, A. M. Fraser, D. L. Trant, A. M. Sheridan, and P. J. Walshe.

Dewan Pitamber Nath to be Lt. (T.C.).

Rheumatic Clinic for Brighton.—The Health Committee of Brighton Corporation has approved a scheme for building a new rheumatic clinic at a cost of £75,000. The local branch of the British Medical Association has given its support and, on the recommendation of Dr. Duncan Forbes, the medical officer of health, the Silwood Hall Hotel is to be bought for the purpose for £25,000; the cost of remodelling the building will be a further £35,000. It is estimated that the clinic will allow of 85,000 treatments a year, and that the income would be about £17,000.

Coördination of Liverpool Municipal Hospitals.—Reporting to the Liverpool public assistance committee, the medical officer of health, Dr. A. A. Mussen, propose that the whole of the municipal hospital service should be brought under the management of the port sanitary hospitals committee, and advises the erection of a new hospital in the outskirts, on a site sufficiently large to provide for extensions. In the ten poor-law institutions now managed by the public assistance committee there are 9813 beds, as compared with 1635 beds in the eight hospitals, and about 300 children's cots, administered by the port sanitary hospitals committee. By a large majority the public assistance committee has approved the principle of the report which is to be sent to the Liverpool voluntary hospitals representative committee for consideration.

SPECIAL ARTICLES

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN LONDON.

PROCEEDINGS OF THE REPRESENTATIVE BODY.

(*Concluded from p. 209.*)

Dr. H. B. BRACKENBURY put four points before the meeting, having reference to conditions under the new Local Government Act.

Effects of Local Government Act.

First, he asked, what could the local authorities do to further the Association's policy of unification of health services? On April 1st the vaccination and infant life protection services had been handed over by the poor-law authorities to the care of the public health authorities. Certain services had received permission from the new authorities for administration under other Acts than the poor-law; for example, some pauper children would be dealt with under the Education Act, and others, who were blind, under the Blind Persons Act. The new authorities were also at liberty to appropriate poor-law institutions for public health purposes. In addition, every local authority had appointed a public assistance committee, and could delegate to this committee its poor-law functions, both advisory and executive. The public health committee might in turn delegate part of its work to other committees; pauper mentally deficient children, for example, could be handed over to the committee for mental deficients. Dr. Brackenbury next spoke of the position of district medical officers. It was proposed that the Association should ask that whole-time officers, apart from exceptional circumstances, should not be engaged in domiciliary attendance on the indigent poor. These patients, it was felt, should come under the care of general practitioners, or part-time officers, for two reasons: in order that the patient might have the advantage of a free choice of practitioner, and so that no one need be under the stigma of "having to have the poor-law doctor."

The third subject raised was representation on local authorities. The law prohibited any person in the employment of a local authority from being a member of that authority. The result of this was that it was gradually becoming more and more difficult for any member of the medical profession to be engaged in public work, and this was not an advantage from the point of view of the community. Some arrangement should be sought with the Ministry of Health to effect a change in the law.

The speaker's fourth point concerned the superannuation of those poor-law medical officers who left their posts on April 1st. Up till that time many of them had been members of their local authorities, but under the new Act they were forced to resign either their membership or their office. Those who had chosen to continue their public work, and to leave their medical post, lost all their savings under the superannuation scheme to which they had been contributing compulsorily for years. Yet, had they been dismissed for misconduct, their money would have been refunded to them. The numbers who had suffered in this way were few, but the injustice was a striking one. The Association had succeeded in placing a one-clause Bill before Parliament, but it had not been pushed. It was desirable that public opinion should be brought to bear to get the Bill passed.

Dr. H. KERR expressed the thanks of whole-time medical officers to the Association for opposing the first draft of the poor-law order. Under this draft the medical profession had been subordinate to the public assistance officer. The recall of this clause, and substitution of less objectionable terms, had been due to the Association.

Medical Patents.

In the absence of Dr. ARNOLD LYNDON, Dr. R. LANGDON-DOWN introduced the subject of patents, his motion being that it was ethically undesirable for a registered medical practitioner to derive financial benefit from the sale of the rights or from royalties for any invention or discovery in the medical field which he might make. The Council had been approached by two outside bodies for a ruling on this point. One of these, an industrial body, the Association of British Chemical Manufacturers, was anxious to know whether the attitude of the medical profession had changed; it had always been taken for granted that medical practitioners were opposed to any monopoly implied in patenting. In 1927 an opportunity had occurred for testing this attitude when insulin was patented and handed over to the control of the Medical Research Council. The profession had always used strong expressions against private patenting in the past, and would doubtless still object to monopoly, secrecy, and hindrance to research. On the other hand, practitioners would be equally anxious to be free of any charge of hindrance to industry or commercial research. It would probably be possible to dedicate a patent compulsorily to a public patents trustee. Practitioners might consider that the time had come to sweep away all restrictions on private patenting, but if it was felt to be undesirable to abolish this 300 year-old principle, an amendment on the lines indicated might be considered. This was a matter for the profession as a whole; the General Medical Council was concerned with medical education, the maintenance of the Register, and the indication of the low line of medical conduct.

Patenting tended to produce secrecy in the worker, it did not encourage the early publication of results, and it fostered haste and rivalry of an undesirable kind, rather than the scientific detachment required for research. Moreover, it gave the great reward to the man who laid the last brick on an edifice which might be the work of many. Though intended to safeguard the public from the dangers of monopoly, the approach for the removal of an abused patent could not be made for three years. It was unlikely that anyone would wish to patent a discovery of a clinical nature, but a person working in the chemical or biological world could scarcely occupy the clinical field as well, and his discoveries would verge on the commercial. There was now an opportunity for relaxation and adjustment so as to give some freedom of patenting and to safeguard against undue monopoly.

Dr. E. GRAHAM LITTLE proposed that the motion should be referred back to the Council for further consideration. The Council appeared to agree that some form of patenting must be considered, and to be inquiring, merely, into the best way to do it. The

Association could not direct the attitude of the profession, but could only lay down rules for members. In answer to a private inquirer, the President of the General Medical Council had expressed the view that a discovery or invention should be made available for the public good, and that the name of the discoverer or inventor should not be associated with it in order to acquire patients. But it seemed unfortunate to make a separation between the medical profession and other men, and to rob the doctor of a right which any other member of the community was in a position to demand.

Mr. H. S. SOUTTAR seconded the proposal to refer the matter back to the Council. A new situation had arisen, he said, requiring consideration. There was no question but that patents must be taken out; the question was who should take them out. At present patents could be taken out in Germany for chemical preparations invented in England, with the result that English manufacturers could not use them. The chief value of patents would be to protect this country against a foreign monopoly. A patent did not mean secrecy; indeed the condition on which it was granted was that the inventor should publish the method of production in detail. It was, in fact, a guarantee against monopoly, secrecy, and hindrance to research. He had himself never taken out patents for the plain reason that there was nothing to be gained by it as far as he was concerned. But he had consulted two medical men of first-class ability, researchers on certain organic chemical compounds. One had produced hundreds of preparations for the treatment of a tropical disease; but without the opportunity to patent them he gained no financial recompense for his labours. In these circumstances it was impossible to find a manufacturer to take up the production of preparations which might become the monopoly of foreign firms. This type of work deserved recompense—it required a very high standard of ability. He dissociated himself from the idea that these men should not engage in clinical work for contact between clinical and laboratory work should be encouraged, nor should the profession disparage the man who tried to make a living from laboratory work. Dedicated patents had been suggested to solve this problem; these were excellent from the point of view of the manufacturer, but less satisfactory to the medical man, who would receive back what the public trustee thought fit—a doubtful privilege. As an example of the possible results he cited the case of the inventor of the trench mortar during the late war, who spent £14,000 on its production; this sum he recovered from the nation after much litigation, but 18 per cent. of it was immediately reclaimed in income-tax. He ended with a loss of several thousands of pounds. The point was of great importance to the individual medical man, and should be referred back to the Council.

Dr. F. TEMPLE GREY suggested that as there had been an unwritten law on this point for 300 years it might as well remain unwritten. Why should not the matter of patents be left to each man's judgment and taste? Many of the points put forward against patents were covered by Act of Parliament; it was required that preparations should be put on the market at the lowest possible price, and that the inventor should receive due reward. There was nothing disgraceful in a patent, and no one ought to be removed from the Register for taking one out. The term had been confused by the issue of so-called "patent medicines," which, in fact, were never patented, and of which the composition was kept a secret. The proposal to refer the matter back to Council received further support from Dr. NOEL WATERFIELD, and this course was approved by the meeting. A further motion to refer back to the Council a section on dedicated patents was also carried.

Fees for Midwifery.

Dr. J. W. BONE introduced the Council's proposals for changes in the existing scale of fees paid by local supervising authorities in cases where medical practitioners are called in on the advice of midwives. The present scale, he said, came into force on Jan. 1st, 1923; all the fees were inadequate, but in the past he had been unable to persuade the Representative Body to do more than say so. The departmental committee had now thought it time to revise the fees, and the Council had asked for certain alterations. These were: that the fee of the doctor for attending parturition should be raised from £2 2*s*. to £3 3*s*.; that the fee for attendance of mother and child at the doctor's surgery should be raised from 2*s*. 6*d*. to 3*s*. 6*d*.; that there should be no payment of a fee for services performed by the doctor after the tenth day from his first visit unless he had reported to the local authority that he considered, for reasons stated, that further attendance was necessary, or unless he was called in by the midwife under her statutory rule; and, finally, that the provisions for payment of a fee for visits to the mother other than attendance at labour or miscarriage, for mileage, and for attendance of the mother at the surgery, should also cover antenatal examinations. The Council had asked for as much as was deemed advisable, and it would be unwise to go beyond a scale which the Association might reasonably expect to obtain.

In the discussion which followed the inadequacy of the old, and even of the revised scale, was stressed.

Dr. H. W. POOLER, speaking of post-partum hæmorrhage, said that no doubt the local authorities could find practitioners to attend cases for a guinea, but that no doctor went to such a case because of the fee. The reasons for his attendance could not be assessed in money. A differentiation between the fee for adherent and the fee for retained placenta had been discussed in his division, but it was felt that it was not easy to draw a dividing line which would satisfy public opinion.—Dr. BONE, in answering the second point, said if the onus of the decision were thrown on the practitioner, the adherent placenta rate would go up.

Amendments to the scale of fees followed each other with such rapidity that they had almost the air of being auctioned from the chair.—An amendment proposed by Dr. C. H. PANTING for South-West Essex finally carried the day in a slightly modified form, as follows:—

> Fee for removal of adherent placenta involving exploration of the uterus, including all subsequent necessary visits during the first ten days, inclusive of the day of birth, £2 2*s*.
>
> This fee not to be payable when the fee of £3 3*s*., for attendance at parturition and subsequent visits during the first ten days, is payable.
>
> Fee for suturing the perineum, for the treatment of post-partum hæmorrhage, for removal of retained placenta, or for any other operative procedure arising directly from parturition, including all subsequent necessary visits during the first ten days, inclusive of the day of birth, £1 1*s*.
>
> This fee not to be payable when either the £2 2*s*. fee or the £3 3*s*. fee already mentioned in the amendment were payable.

Another proposal was made by Dr. A. S. WILSON (for Holland, Lincs.) providing that the fee for attendance at or in connexion with an abortion or

miscarriage, including all subsequent visits during the ten days from and including the first visit, should be raised from £1 1s. to £2 2s., and this was also carried.

The other suggestions put forward by the Council were allowed to stand.

Birth Control.

A motion was introduced by Dr. BONE, that in the opinion of the Representative Body, where advice on birth control was given at any maternity and child welfare centre (voluntary or municipal) it should be given on medical grounds only, and at the discretion of the medical officer in connexion with any individual case, and not merely because it was asked for by the patient.—This met with disapprobation from Dr. LANGDON-DOWN, who thought it a gratuitous and pernicious invasion of medical liberty. The phrasing, moreover, was ambiguous; what was the meaning of "medical grounds," and did "advice" mean advice on principle or method? The doctor should have absolute liberty to dissuade the patient, or to urge birth control, and to suggest the method he thought best when necessary.—Dr. FOTHERGILL said that in Hove the Labour Party had been trying to establish that every woman who desired knowledge of contraception should have right to attend maternity centres; this would include single women. He agreed that the patient should not determine whether she was to receive information. It was not fitting that anyone should have the right to dictate to members of the medical profession what advice they should give to their patients.

Dr. G. JONES (Lewisham) considered that the unmarried woman had every right to receive information if she desired it. To withhold information would not make her chaste, and if she was determined to practise contraception she should be taught the best and safest methods. The alternatives to contraception were the infinitely greater evils of child murder and abortion. An altered form of the amendment, proposed by Dr. LANGDON-DOWN, was finally carried, and ran as follows:—

> In the opinion of the Representative Body the medical officer at any maternity and child welfare centre (voluntary or municipal) equally with any other medical practitioner, has the right to advise either for or against contraception by methods in accord with his individual judgment and responsibility, and should not be subject to dictation from the patient or her employer in this matter.

Anæsthetics in Midwifery.

Dr. J. YOUNG, speaking of the report of a committee on anæsthetics in midwifery, said that the danger in anæsthesia was due to the toxic effects of prolonged administration. There had been much propaganda in the press during the past year to make anæsthesia available for every woman. There was undoubtedly a risk that if this were made a right, women would be tempted to call for it at an unsuitable stage in labour and the dangers of childbirth would be increased. He asked that the following statement should be incorporated in the report: "In this connexion it is important to emphasise the fact that, unless widely guarded, efforts to extend the employment of general anæsthesia in labour may, by increasing the risk of instrumental delivery at too early a stage, tend to increase maternal mortality and morbidity."

Dr. CHRISTINE MURRELL said that the committee had covered the point freely in the following paragraph of the report: "The common form of anæsthetic used in midwifery in this country is chloroform, or a mixture containing chloroform. Chloroform given during labour diminishes the strength and frequency of the uterine contractions, and the semi-voluntary bearing-down efforts of the mother; it therefore prolongs the labour and increases the use of forceps with the risks that this entails."

Though Dr. YOUNG considered this paragraph to be inadequate, the meeting felt that it should not be asked to incorporate a fresh opinion without more consideration, and passed to the next business.

Ophthalmic Benefit.

Mr. BISHOP HARMAN described the work of the National Ophthalmic Treatment Board, which has now been in operation for a little over a year. The Board is a limited company, and composed of four members appointed from the British Medical Association, and four members of the Association of Dispensing Opticians. The members from each of the bodies have an equal voice on the Board, except on medical matters which are the concern of the medical members only. All expenses for the first year were borne by the Opticians' Association, but at the end of that time it was decided that the British Medical Association should give an equal guarantee, and for this purpose the sum of £1000 was voted. The scheme, Mr. Bishop Harman said, was now in vigorous working order. During the first three months of this year more cases had been treated than in the whole of last year, and during the fourth month the number treated had exceeded all those in the first three months. The value of the scheme lay in the opportunity it gave for the doctor to insist on the examination of his patient by an ophthalmologist. It was important that the profession should have information on the scheme, and its regulations put before it at once.

Dr. D. F. TODD proposed an amendment, for Sunderland, that the action of the Council in voting the sum of £1000 to a commercial optical company be disapproved. He thought the Association was creating a precedent of a serious nature if it stepped into business concerns. The result would be that opticians would again begin to treat without reference to an ophthalmic surgeon.

Dr. HELEN LUKIS opposed Dr. Todd; she thought that time was wasted and much harm done by the optician, who would provide a patient with glasses when the eye condition was referable to a generalised disease like nephritis. The eye was not in a water-tight compartment, and could not be treated without a knowledge of medicine, anatomy, physiology, and pathology. Her only complaint against the new Board was that it was insufficiently advertised.

Dr. PETER MACDONALD pointed out the inaccuracies in the Sunderland amendment. The National Ophthalmic Treatment Board was not an optical company, and the Council had not voted a sum, but had put up a guarantee.—Dr. POOLER was anxious to know how soon the scheme would apply in a practical manner to the rural areas.—Mr. BISHOP HARMAN replied that the Council would consider sending a circular to members of the Association.—Dr. TODD'S amendment was lost.

Lunacy and Mental Disorder.

In moving the annual report under "Lunacy and Mental Disorder," Dr. LANGDON-DOWN mentioned that the Mental Treatment Bill had largely followed the recommendations of the Association to the Royal Commission, and on one point—that relating to non-volitional patients—had adopted the advice of the Association in preference to that of the Commission. The Government had been urged to give the doctor signing documents the status of a witness, but the inclusion of this had not been granted. An

important change of onus had been introduced into the protection clause that no civil or criminal proceedings could be brought against a practitioner without the consent of the High Court, and that this should not be granted unless there was substantial reason to think he had acted in bad faith or without reasonable care.

Dr. D. ROXBURGH said that the Council had failed to obtain that immunity for the doctor which the Representative Body had laid down as a minimum. The profession believed that no doctor would sign a certificate without just cause, and it was no longer necessary to protect the lunatic from cruelty by law. The serious responsibility of giving certificates for lunacy was thrown on those members of the profession who probably had least knowledge of nervous diseases—the general practitioners. It should be laid on those who had the greatest knowledge of the subject. The protective clause was insufficient; how could a high court judge form an opinion without holding an inquiry?—Dr. LANGDON-DOWN demurred; if Dr. Roxburgh wanted the medical profession to be entirely free from risks, he wanted a world at present unattainable. The committee had been chiefly concerned for the welfare of lunatics, whose position was materially improved under the Bill. The report was adopted.

Vaccination.

Dr. E. LEWYS-LLOYD, in moving the adoption of the Public Health Report, asked that the paragraphs on vaccination should be left unaltered.—An amendment, however, was introduced by Sir ROBERT BOLAM, for Newcastle-on-Tyne, suggesting that Government lymph should be made available for general practitioners, and that every practitioner should receive the same remuneration from the Government as the public vaccinator.

Dr. H. KERR removed some misconceptions manifest in this amendment. It had been stated on a previous occasion that Government lymph was the most reliable variety, on the basis of the experience of public vaccinators. But it must be remembered that public vaccinators dealt almost entirely with infants, the reaction of whose skin was slighter. Hence the small incidence of "bad arms." Other producers of lymph had been compelled by the Government to standardise their products, and it was not likely that after enforcing this order the Government would be ready to step into the market as competitors of these manufacturers. Besides, if the Government lymph were made public how could the Ministry of Health control results or collect statistics? Communisation of Government lymph would, in any case, require special legislation. The amendment was also opposed by Dr. Temple Grey and by Dr. Lewys-Lloyd, who pointed out that the wording was not clear. The Government remuneration for vaccination was 1*s.*; it was the local authorities who paid a higher fee. The Newcastle proposal was not accepted by the meeting.

Motor Drivers.

Dr. R. G. GORDON said that the committee on tests for motor drivers was fortunate in having Prof. Joseph Barcroft, of Cambridge, as chairman. The Traffic Bill had now been passed and would probably reach the statute book at the end of the session. This provided for a declaration of fitness on application for a licence, and certain disorders had been made either conditional or absolute bars to driving. The age-limit for motor-cycle riding was to be raised from 14 to 16 years, and for driving public vehicles to 21. No public vehicle was to be driven for more than 11 hours in the 24, or for more than five and a half hours at a stretch.

Dr. C. E. DOUGLAS (Fife) said that the problem had been before the law courts for many years of deciding at what point the driver who had taken alcohol was safe, and at what point he became a danger. A definition of drunkenness published several years ago read to the effect that a man was drunk when he had lost control of his actions to such an extent as to be prevented from being able to execute carefully the work on which he was engaged. But it must be agreed that the point at which he became a danger was the point when he took alcohol into his system. From the beginning alcohol had a sedative effect on some of the higher centres, and work deteriorated in spite of the fact that the subject thought he was doing better. This was a point in preventive rather than forensic medicine. There were times when we were better without alcohol, and one of them was before driving a car. The meeting was unwilling to give a ruling on the subject, and proceeded to the next business.

Public Medical Services.

Dr. H. M. STRATFORD described the poor area of Kensington in which the London Public Medical Service was active. The younger doctors had considerable interest in the scheme, and found it satisfactory and useful. They were not in any sense antagonistic to the Association's scheme, but wished to propose that until that scheme was in working order the Association should support and encourage the London Public Medical Service.—Dr. BRACKENBURY said that the original scheme of this kind which had been put into practice had been initiated and supported by the Association. To encourage such schemes had always been the accepted policy.

Dr. FOTHERGILL said that since the beginning of the century the State had been initiating health services, which were now encroaching on private practice. An effective general medical service had been outlined in the proposals of the Council, but to bring the scheme into action the local authorities and voluntary bodies must share the principles involved. He therefore introduced a motion to suggest that the Council should make every endeavour to secure the acceptance by the central and local health authorities, voluntary bodies (hospitals contributory scheme committees, approved societies and employees' associations), as well as by all groups in the medical profession, of the principles advocated in their proposals. This was carried.

Annual General Meeting.

Prof. A. H. BURGESS, the President of the Association, took the chair at the annual general meeting. In announcing that Dr. W. G. Willoughby had been elected president for the year 1931–32, he said that this was the first occasion on which a medical officer of health had been chosen for the presidency.—Dr. WILLOUGHBY said that Eastbourne was preparing an enthusiastic welcome for the Representative Body in 1932.

WORK OF THE LONDON HOSPITAL.—Last year the 13,992 in-patients (839 beds) stayed an average of 18·55 days; the 645 deaths were a percentage of 4·83. The 89,972 out-patients made 461,297 attendances. The average total cost of each in-patient was £14 4*s.* 9*d.* and of each out-patient attendance 2*s.* 7*d.* At £265,311, the expenditure left a surplus of £19,043, but this satisfactory pecuniary position was due to legacies, which produced £68,840. Whereas 20 years ago the income from investments was only £20,810, it is now £53,117.

CANCER OF THE LIP, TONGUE, AND SKIN.

A STATISTICAL INQUIRY.

STATISTICAL inquiries made by Dr. Janet Lane-Claypon into the results of treatment of cancer of the breast and the uterus have been published from time to time by the Ministry of Health. She has now made an analysis of the literature of cancer of the lip, tongue, and skin, which forms No. 59 of the valuable Reports on Public Health and Medical Subjects issued by the Ministry.[1] Earlier reports in the series on cancer have dealt mainly with the organs usually affected in women. Cancer of the lip and tongue occur mainly in men but, contrary to accepted theories, the investigation does not incriminate smoking in itself as an important causal factor, though roughness and heat of the pipe or holder may be. Owing to certain technical similarities it has been convenient also to consider cancer of the skin in this report.

In considering treatment the percentage results are mostly set out in the form of two different survival-rates, the crude and the net survival-rates, the difference being as follows:—

(*a*) The *crude* survival-rate.—This is the percentage of survivors on the total sample treated whether by surgery or radiotherapy, and whether in one stage or in various stages of the disease. This rate regards all cases not definitely known to be alive and well as having died of cancer and gives too unfavourable a result.

(*b*) The *net* survival-rate.—Experience has shown (cf. Report on Public Health and Medical Subjects, No. 47, Ministry of Health) that patients "lost sight of" are probably not all dead. The correction made by ignoring them in addition to those dying of causes other than cancer secures the nearest approach to accuracy which it seems possible to obtain.

In calculating these survival-rates no patient has been included among the living who, though alive, was known to have a recurrence of the disease.

Cancer of the Lip.

A survey of the literature on operability suggests that only 10 per cent. of the patients who apply for treatment for new growths on the lip are in an inoperable stage. In considering the figures supplied by authors writing from 1878 onwards it must be remembered that the standard of operability has changed very considerably during the period under review. The operative mortality is not serious, except in advanced cases when removal of bone is necessary. Almost all the cases reviewed have been subjected to histological examination, even as long ago as 1865. The crude survival-rate after local excision is 27·3 per cent. after five years and 55·6 per cent. after three years. The net survival-rate is 29·4 per cent. after five years and 58·4 per cent. after three years. In cases where the glands were always removed the survival-rate is 80 per cent. There were no great differences between the three-year and five-year rates, for 90 per cent. of recurrences occur within three years. The available sample for all stages of the disease and for all methods of radiotherapy gives a survival-rate of 76·1 per cent. at three years after treatment. The results of treating recurrent cases are good enough either by operation or by radiotherapy to make treatment worth undertaking.

Cancer of the lip seems to take a slow course if it is not treated, and cases are on record in which the symptoms had been present for 36 years. Most cases, however, come for treatment within one year of the onset of symptoms. The lower lip is much more often affected, the proportions of the two lips being 95 and 5 per cent. It occurs 12 to 14 times more often among men than among women, although women are more apt than men to have cancer in the upper lip. The mean age of incidence is unknown, but the average age of application at hospital is 57 years, and the average age at death is 70 years. Metastases are rare.

The statistical data which have been collected do not support the common belief that smoking has an ætiological relationship to cancer of the lip; in 184 cases investigated, roughly one-quarter were affected with cancer at the place where they held their pipes. In the Finisterre district of France, both sexes smoke the short pipe, but cancer of the lip is as rare among women there as in other parts of the world, nor does the literature suggest any other common antecedent condition. There is, however, some reason to suppose that methods of smoking likely to damage the epithelium—e.g., the old clay pipe—may act as chronic irritant agents. The commonest precursory lesions are blebs and ulcers.

Cancer of the Tongue.

Literature on cancer of the tongue was found to give unsatisfactory data for the purposes of this report, and the results are only to be considered as relatively accurate. Apparently from 20 to 25 per cent. of all patients operated on are alive and well three years later, but the true survival-rate is probably somewhat higher than this. The operative mortality-rate varies from 7 to 12 per cent. The samples available suggest that radiological treatment shows a better survival-rate than operation—37·8 per cent. and 59 per cent. in a small sample from the Radiumhemmet, Stockholm. Both crude and net survival-rates are higher for the three-year than for the five-year period, suggesting that three years is an insufficient interval on which to base statistics. The disease, on the whole, has a short natural duration—about 16 months. Patients usually apply for treatment seven or eight months after the appearance of symptoms; the delay is all the more serious in that the disease has such a short natural period and disseminates so rapidly. It reaches the glands early in the disease, and most surgeons prefer to treat them as part of the routine.

The mean age is rather lower than for cancer of the lip: 54 years, and the mean age at death is 61. Cancer of the tongue is about ten times as common among men as among women. The commonest antecedent condition recorded is syphilis, sometimes accompanied by other forms of chronic irritation. There is also a close relationship with leucoplakia, with or without previous syphilis. No accurate data of the supervention of cancer upon syphilis are, however, available. The figures, so far as they go, do not suggest an association between smoking and cancer of the tongue. While the jagged edge of a tooth seems to have been an exciting cause in a few cases, statistics dealing with dental abnormalities are too scanty to be worth consideration. Betel-chewing seems to produce cancer of the mouth in some parts of the East but not in other parts, and the literature does not indicate whether the difference is due to some variety in the composition of the quid or to different habits of chewing.

Cancer of the Skin.

The samples show wide variation in survival-rates, but on the whole it appears that 40 to 50 per cent.

[1] H.M. Stationery Office. 1930. Pp. 121. 2*s*.

of all patients treated are alive and well three years after operation, and there seems little doubt that adequate radiological treatment will give a figure of 80 to 90 per cent. Despite some difference of opinion it appears that results are more favourable with basal-celled than with squamous-celled cancers. Radiotherapy seems to give good results with relapsed cases. The disease takes a long course; the average period between the appearance of symptoms and the application for treatment is ten years. Less than a quarter of the patients apply for treatment within a year. Most of the cases occur in the upper part of the head and face, and the majority of these are of the rodent type, which invades the glands very slowly if at all. A few cases of sarcoma have been unavoidably included; radiotherapy seems to give good results in sarcomata and melanotic sarcomata. Men and women are affected about equally with a slight preponderance among men. Apparently the lesions in women nearly all occur in the upper part of the face. The mean age varies between 55 and 58, and the mean age of death is 66 for men and 68·7 for women. The precursors appear in the form of blebs, crusts, warts, pimples, scabs, nodules, or injuries. It seems reasonably certain that a high percentage, if not all cancers of the skin, develop on a previously existing lesion and that many of them are caused by frequent irritation. The relationship of occupation with cutaneous cancer has been exhaustively investigated; chimney-sweeping and mule-spinning are the two occupations which show a high percentage of deaths from cancer of the scrotum. There is insufficient evidence to lay much stress on the relationship of the disease to rigours of climate, whether cold, heat, or general exposure.

CANCER OF THE EXTERNAL GENITALIA.

Cancer of the penis and scrotum form a large part of all deaths attributable to cancer of the skin. In cancer of the penis the results obtained by treatment are very satisfactory, but curiously enough no data are available from any general hospital in this country. Statistics from abroad show that the crude survival-rate after three years is 47·4 per cent. and after five years 41·1 per cent. It is probable that the results of radiotherapy are as favourable as those of surgery, but no large series have been published. The average period between the onset of symptoms and the application for treatment is 14 months; the interval is often extended to two years by preliminary ineffective treatment at home. There seems to be a high proportion of cases showing enlarged but not yet cancerous glands. Visceral metastases are rarely found. The mean age is between 52 and 54 years. Phimosis seems to be a common antecedent and venereal disease was present in 28·4 per cent. of all cases. The disease is undoubtedly less frequent among the circumcised.

The results of local removal of cancer of the scrotum are satisfactory; no series treated by radiotherapy is on record.

The only large series of cases of cancer of the vulva is that published from Radiumhemmet, where the latest method is electro-coagulation combined with distant radium. Of 60 cases so treated, 19 were alive and well three years later.

QUEEN'S INSTITUTE OF DISTRICT NURSING.—At a meeting of the council recently it was reported that up to the present time over £2800 had been received as a result of the National Gardens scheme, considerably more than had been received to the corresponding date last year.

INTERNATIONAL CONGRESS OF MICROBIOLOGY.

(FROM A CORRESPONDENT.)

THE first of the proposed triennial congresses of the International Society of Microbiology took place in Paris from July 20th–25th, mostly at the Pasteur Institute, under the Presidency of Prof. Jules Bordet. Some 800 members attended from many countries, and most of the honoured names in bacteriology appeared on the list of those registering. Some 30 British members were present.

The main subjects set for discussion were: variation in micro-organisms, scarlet fever, neurotropic filterable viruses, undulant fever, cholera, influenza, lipoids in immunity, and blood groups; in another section immunity in plants and spirochætes were included. In addition, a number of papers on general subjects were given—in any one of five languages. No one member could attend more than a limited number of meetings; but the full papers will be published in the Proceedings of the Congress as soon as possible. It was of interest to hear various views, often plainly contradictory to each other; thus, scarlet fever was held to be due to the specific toxin of the hæmolytic streptococcus, to allergy produced by the streptococcus, to a filterable virus; post-vaccinal encephalitis was specifically due to vaccinia virus, was not specifically due to this virus; B C G was capable of becoming pathogenic and could be split into a harmless and a virulent variety, was unchangeably avirulent. Little really new work was presented, but useful reviews of existing knowledge were given, and in this way and by the personal contacts which it affords a congress of this kind serves as an exceedingly useful clearing house of information and opinions.

A. R. Dochez's successful transmission, by means of a filtrate, of the "common cold" to apes and human beings—confirmed in another American laboratory—holds high promise. This and the extraordinary increase in the antigenic efficiency of diphtheria and tetanus toxoids produced by the addition of alum, discovered by A. T. Glenny, were two new items that attracted much attention. A useful discussion on the active immunisation of human beings against diphtheria by W. H. Park, G. Ramon, A. B. Wadsworth, and others led to general agreement that toxoid has high immunising power. Members were impressed with the lamentable tale of deaths and infection amongst research workers in yellow fever and in psittacosis. The Committee discussed nomenclature at several meetings, and arrived at certain general conclusions which will presumably be further considered at the next meeting of the International Botanical Congress.

Generous hospitality was extended to the guests, the Pasteur Institute playing a leading part. The general staff work by Dr. A. Dujarric de la Rivière and Dr. Harry Plotz was excellent. The only flaws were the failure on the part of many of the speakers to keep to the time allotted to them, and of others to speak slowly and clearly. An appreciation of the international friendliness manifest at all the meetings was made by Prof. G. H. F. Nuttall in his speech at the banquet.

The next meeting will be held in Berlin in 1933, and the announcement that the popular Prof. Martin Hahn would be President, and Sir Almroth Wright President of Honour, was received with enthusiasm.

NASOPHARYNGEAL FLORA.

A BACTERIOLOGICAL STUDY.

A STUDY of the nasopharyngeal bacterial flora of a group of the Manchester population during the period July, 1925–September, 1927, was carried out in the Department of Bacteriology of the University of Manchester by R. H. Blackburn, R. B. Boston, E. St. G. Gilmore, R. Lovell, S. P. Wilson, and Mrs. M. M. Smith.[1] The work was under the direction of Prof. W. W. C. Topley, F.R.S., and the expenses of the inquiry were defrayed by a special grant from the Ministry of Health. The scope of the investigation and the methods adopted were arranged in consultation with the Ministry's bacteriological staff. Its purpose was to follow the variations in the nasopharyngeal flora of a sample of the population of a large industrial city, and to determine whether any significant relation could be detected between fluctuations in the prevalence of any of those bacterial inhabitants of the nasopharynx which are usually credited with pathogenic potentialities, and fluctuations in the prevalence of respiratory diseases. Combined bacteriological and epidemiological inquiry has made it possible to describe the seasonal incidence of certain important bacterial species and to state how this flora fluctuates with the weekly sickness and mortality returns. The results are summarised as follows:—

(1) During the period July, 1925–September, 1927, a succession of epidemiological events in Manchester was associated with a succession of changes in the bacterial flora of the nasopharynx.

A winter and spring marked by a high incidence of respiratory disease, in the absence of any influenzal epidemic, was characterised by a high frequency of hæmophilic bacilli as a group, a low frequency of indol-forming strains within that group, and a low frequency of pneumococci.

During the following summer, with its customary fall in the incidence of respiratory disease, the frequency of pneumococci and of indol-forming hæmophilic bacilli remained at a low level, and the frequency of hæmophilic bacilli, as a group, declined.

During the following autumn and winter the frequency of all three bacterial groups rose to a high level. The numbers of indol-forming strains of hæmophilic bacilli commenced to rise in October, increased gradually until the following February, and rapidly during March, reaching a peak coincidently with the peak of the influenza epidemic, which visited Manchester in the spring of 1927. Thereafter the frequency of this bacterial group declined, at first steeply, then more slowly, remaining at a relatively high level after the epidemic had subsided. The frequency of hæmophilic bacilli, as a whole, showed a fluctuation very similar to that of the indol-forming sub-group, save that the rise commenced later, in December, 1926, and then proceeded steeply to a synchronous peak in March, 1927. The general form of the frequency curve of hæmophilic bacilli, as a group, did not, however, differ significantly from one winter to another, whereas the curve described by the indol-forming sub-group during the winter 1926–27 differed sharply from that described during the winter 1925–26.

The pneumococcal carrier-rate, which had remained at a low level between November, 1925, and October, 1926, rose sharply during the latter month to a level higher than any previously encountered. After a slight fall in December it rose to a higher peak in January, at the time when the influenzal epidemic commenced, and then declined slowly, with minor fluctuations, until the close of the inquiry in the following September. Whether this association of events was purely fortuitous, or was in any way significant, it is impossible to say. A far longer experience would be needed to establish the existence of a correlation between any variation in the nasopharyngeal flora, and fluctuations in the prevalence of a particular respiratory infection. We would suggest, however, that similar surveys, carried out in several localities and over considerable periods of time, would probably yield a definite answer to the question at issue, and that such an answer is worth obtaining.

(2) Although the frequency of hæmolytic streptococci in the nasopharynx varied over a considerable range during the period July, 1925–September, 1927, these variations showed no clear association with any recorded epidemiological events.

(3) The frequency of saccharose-fermenting, Gram-negative cocci was high throughout the whole period of inquiry. The results do not suggest that this group of bacteria is in any way related to the prevalence of respiratory disease.

(4) No evidence was obtained that pneumococci, hæmophilic bacilli, or hæmolytic streptococci are concerned in the causation of the "common cold," using that term in its widest sense, and not confining it to cases of acute suppurative nasal catarrh.

(5) The four bacterial groups studied in this inquiry occur far less frequently in the nose than in the nasopharynx. Their frequency in the latter situation does not differ sensibly from their frequency on the tonsils. Pneumococci and hæmophilic bacilli were isolated less frequently from mouth-washings than from nasopharyngeal swabs; in the case of hæmolytic streptococci and saccharose-fermenting, Gram-negative cocci, the two methods of examination give essentially similar results.

[1] Ministry of Health Reports on Public Health and Medical Subjects, No. 58. H.M. Stationery Office. Pp. 26. 6*d*.

MEDICINE AND THE LAW.

The Evans Cancer Treatment Case: a Question of Costs.

THE Court of Appeal has overruled the decision of Mr. Justice Charles upon one aspect of Mrs. Burrell's claim against Mr. Evans, an unqualified medical practitioner, described in THE LANCET of May 31st, p. 1189. Mrs. Burrell's cause of action, it may be remembered, was framed in three different ways. First, she contended that the defendant had made fraudulent representations by which she was induced to enter into the contract for treatment by the so-called Evans cancer cure. Secondly, she said the defendant warranted to cure her permanently and in three months, and broke his warranty. Thirdly, she said he was negligent in his treatment of her. Every plaintiff, of course, must show in formal fashion, in a statement of claim or otherwise, the specific legal ground of his or her action and the remedy asked for. These three causes of action, legally distinct, were naturally not readily distinguishable when the evidence was being offered on the whole of the case, and when the jury was trying to make up their mind on the merits and facts and on the trustworthiness of the witnesses. In the upshot the jury, after an absence of nearly three hours, failed to agree on the first and third branches of the claim—namely, the questions of fraudulent misrepresentation and of negligence; they did, however, definitely find in favour of Mr. Evans on the second matter—namely, the allegation that he had warranted to cure Mrs. Burrell in three months. Counsel for Mr. Evans, rightly claiming that he had at any rate succeeded on the issue of contract (as distinct from the issues of fraud and negligence), asked for his costs on that issue. Mr. Justice Charles refused the application on the ground that the case was tried as a

whole, that there was an intermingling of allegations and evidence, and that it would be inconvenient to give judgment on one point only if the action were to be tried again. The Court of Appeal has now said that this was wrong. Lord Justice Scrutton points out that it is not a mere matter of costs. If and when the case is set down for a new trial, the question will arise whether the plaintiff can again put forward her claim on the alleged warranty, and the defendant will then be entitled to say that the decision of the jury at the previous trial has closed that avenue. The question of the costs of this appeal was referred back to the judge who tried the case, with liberty to apply.

The disentangling of the costs of defending one part of a case from the costs of defending other parts is one of the mysteries which are solved without publicity in the taxing department of the law courts. In this particular case the problem of apportionment will be as intricate as usual. It it were a mere rule-of-thumb practice that a party, having succeeded on one out of three separate issues, was entitled to one-third of his total costs, it would be easy enough. Here, if it can be said that all three issues (and the evidence thereon) were inextricably intermingled, success on one issue alone will carry with it a larger proportion of the cost of the services of solicitors, the instructing and briefing of counsel, and the attendance of witnesses.

A Motor-car Insurance Claim.

The medical profession, which perhaps, more than any other, relies on the use of the motor-car, will note with interest a recent case on a motor-car insurance policy. The plaintiff's car caused injuries to a third person; the insurance company repudiated liability because the car was not "the insured car" covered by the policy, but a new car with which the plaintiff had replaced the original vehicle. Having had occasion to have the hood of the "insured car" repaired, the owner decided to buy a new car in view of the heavy cost of repair. He therefore handed over his old Lancia, paid £100, and became owner of a new Lancia. A telephone message was sent to his brokers to transfer the insurance to the new car, but unfortunately they did not carry out the instruction. The policy covered the liability of the motorist in respect of the use of "any motor-car (other than a hired car) provided that such car is at the time of the accident being used instead of the insured car." The judge had to decide whether the new car, purchased in the circumstances already mentioned, was being used "instead of the insured car" within the meaning of the policy. Mr. Justice Roche said there was no express or implied term in the policy that continuance of the ownership of the car originally insured was necessary. If the original car was burnt and the owner bought or borrowed another in its place, he would be covered if he could properly be said to be using the substituted car "instead of" the old one. The judge seems to have been influenced by the fact that the plaintiff bought a car of the same type as the original "insured car"; he refrained from deciding the position if the plaintiff had used a car of an entirely different type, "if, for instance, the insured car had been a baby Austin and he had used a Rolls-Royce." Doctors should keep an eye on the terms of their policies in this kind of matter. It is particularly important that the owner should be covered against risk of damage to a car or to third parties either where he has changed his type of car or where he is using a substituted car temporarily. If he should deem it advisable also to cover himself against liability for the expense of hiring a car when the insured car is under repair, he must see that this special provision is included.

Spiritualism and Testamentary Capacity.

In recent litigation over the will of the late Dr. Abraham Wallace, the court obviously shrank from the question whether, or to what extent, a strong interest and belief in spiritualism and psychic phenomena could amount to a delusion such as makes a person unfit to execute a will. Dr. Wallace died at Paignton last January at a ripe age, leaving an estate of about £10,000. There had been two wills, one of December, 1928, the other of November, 1929. The executrix, Mrs. Perkins, propounded the later will under which, subject to various small legacies, the deceased bequeathed to her the residue of his estate, expressing his gratitude for her care during his declining years. His children resisted this will, and also the will of 1928 under which Mrs. Perkins merely received a legacy. They contended that neither will was duly executed, that Dr. Wallace was not at the time of sound disposing mind. He had, they said, been interested for many years in spiritualism; after 1926 he became so obsessed that he suffered from delusions, and after his wife's death in November, 1928, his mind became so unbalanced that he was not fit to make a will. In the formal language of probate pleadings, the defendants put Mrs. Perkins to proof of the righteousness of the transaction; they claimed that Dr. Wallace died intestate, and they asked for letters of administration. The evidence was directed to two different points. First, there was the elementary question whether the wills were properly executed. Two domestic servants, who had signed their names as witnesses of the 1929 will, said that they had not seen Dr. Wallace himself sign the document. The second and bigger question was that of the testamentary capacity of the deceased. On behalf of Mrs. Perkins, several witnesses said that he was a strong-minded and capable man, whose mental power appeared in no way warped or twisted by his spiritualistic beliefs to the detriment of sound judgment. This opinion was supported by extracts from his correspondence on business and family matters. On the other hand, there was evidence that he believed himself in communication with his dead wife, who appeared to him at séances and indicated to him particular courses of conduct. Sir Oliver Lodge was in court on the third day of the trial but was not called as a witness, the case being settled on the intervention of Lord Merrivale. The President, after seeing counsel in his private room, pronounced against the execution of the 1929 will, expressing doubts whether any tribunal could have been satisfied that the testator affixed his signature in the presence of the two attesting witnesses, or that he acknowledged it in their presence. Lord Merrivale then pronounced in favour of the 1928 will, declaring it to have been duly executed by a competent testator who was aware of its contents and of the position of his affairs. All allegations made on both sides had been withdrawn by agreement, and a situation of some difficulty was thus ended. The President, in conclusion, remarked that this left Dr. Wallace untouched in the judgment of those who had great affection for him, his own family, his friends and confidants, "and, indeed, those who were his fellow-believers in occult matters about which it would not be proper that I should say anything further." Thus the main issue, inevitably raised in the circumstances of this particular case, remained undecided. Apart from any element of undue influence, the courts would hardly be prepared to say that no believer in the occult can make a

valid will. Evidence of insanity creates a presumption against testamentary competence, but it is always permitted to reply that the testator's delusions or insanity were irrelevant to the scope of the will, or insufficient to destroy or suspend testamentary capacity. Even where the presumption of insanity is supported by the fact of confinement in an asylum, it may be rebutted by satisfactory evidence that the will was executed during a lucid interval.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

HOSPITAL SUNDAY FUND AND SWEEPSTAKES.

Following on the threat to the Dublin Hospital Sunday Fund made by the Archbishop of Dublin (see THE LANCET, July 5th, p. 45) a meeting of the supporters of the Fund, held recently, decided to refuse grants to any hospital which took part in promoting, or received any benefit from, a sweepstake. In proposing the resolution, the chairman of the fund, the Earl of Meath, put forward no arguments for its adoption other than the attitude taken by the Archbishop and certain other supporters.

Having quoted the opinions expressed by the Archbishop, Lord Meath said that "the Hospital Sunday Fund had to decide whether they should fall in with the Archbishop's views or give up the Hospital Sunday Fund altogether." The proposal was opposed, though unsuccessfully, by Senator Sir Edward Coey Bigger. The situation created by the decision of the Hospital Sunday Fund is unfortunate. The decision gives no help to the solution of the financial problem of the Dublin hospitals; it merely asks the public to transfer their subscriptions from certain hospitals to certain others, and to be guided in their choice, not by the needs of a particular hospital or the value of the work it performs, but by special ethical views on gambling. Correspondents of the daily press have not failed to point out that the clerical upholders of the Sunday Fund are enforcing on the hospitals a more rigid ethical code than they think it necessary to apply in regard to the maintenance of their own churches.

WOMEN DOCTORS FOR INSURED WOMEN.

At a recent meeting of the Belfast Trades Council the Secretary read a letter from the Ministry of Labour of Northern Ireland, replying to the Council's request for the appointment of women doctors for insured women. The Minister pointed out that the Council were asking him to depart from the British practice. If he were to accept the view that women claimants should be examined only by doctors of their own sex it would mean duplicating most of the appointments of full-time or part-time medical officers throughout Northern Ireland, and consequently an increase in the administrative cost of the health insurance scheme. Any examination which was carried out by a referee was undertaken only to the degree necessary to enable a correct opinion to be formed as to the claimant's capacity for work. He should also like to inform the Council that on every occasion on which a woman was examined a nurse was present.

PAYING PATIENTS AT LEAMINGTON.—The coming centenary of the Warneford Hospital, Leamington, is to be marked by the erection of wards for private patients. The income limits have been fixed as follows:—Single persons, under £350 a year; married couples without children under 16, £450; widows and widowers with a child or children under 16, £450; married couples with a child or children under 16, £550. The medical fees are not to exceed 20 guineas.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

AN OFFICIAL REPORT ON THE LÜBECK DISASTER.

THE Minister of the Interior has published a report on the investigation made by his department in Lübeck. The report states that the Lübeck authorities had not informed the German Health Office before introducing the Calmette method of inoculation with B C G; it was their duty to do so, because in 1927 the Health Office had recommended some reserve in using this method. Moreover, after subcultures had been made from the original Calmette culture, it would have been their duty to ascertain that these were innocuous to animals before distributing them for use on infants. The supervision of the infants was also insufficient. The report states that Prof. Deycke is to be blamed because he had destroyed a great part of the subcultures, so that an examination was very difficult. After the virulence of the material used on infants was discovered at the autopsy on an infant who died during the treatment on April 26th, doses of B C G were still left in the hands of midwives and administered to infants. The Lübeck authorities were informed much too late by the doctors concerned, and the Central Government not before May 14th. The number of deaths has now increased to 52; some of the infants whose condition had improved have become worse again, and all the infants who have received cultures will be in danger for many years.

OPERATIONS WITH HIGH-FREQUENCY CURRENTS.

Prof. Heymann, chief surgeon of the Augusta Hospital in Berlin, lately read a paper before the Berlin Medical Society on operations with high-frequency currents. He said that the tissue may be cut in the same manner as with an ordinary sharp scalpel. Hæmorrhage is very slight, the blood from the small vessels being coagulated under the influence of the heat, whilst bleeding from larger vessels may be arrested by introducing the current into the artery forceps. The cut tissues remain dry because they are covered by a stratum of coagulated albumin, this being also a protection against infection. The method has been applied by Prof. Heymann in laparotomies, in growths of the brain, amputations of the mamma and of the extremities, and especially in furuncles and carbuncles. The great advantage is the arrest of hæmorrhage without ligatures; the drawbacks are the fact that the surgeon is dependent on the proper working of the diathermy apparatus, the muscular contractions caused by the currents, and the possibility of explosions produced by the proximity of ether and other anæsthetics. The difference between the action of diathermy and thermocautery is that the coagulation caused by diathermy is very superficial, not exceeding 2 mm. in depth. The idea that wounds produced by diathermy heal less rapidly than wounds made by a scalpel is erroneous. In the course of the discussion Prof. Heymann's views were generally confirmed. The method was considered to be especially valuable for cosmetic operations.

INTERNATIONAL HYGIENIC EXHIBITION.

In 1911 an international exhibition of hygiene was held in Dresden, and many of the exhibits were preserved to form a permanent museum. This museum has now been organised and was opened this summer, together with a great international exhibition, under the patronage of the German and foreign governments. The German government

presents an historical exhibition of the development of hygiene and of medicine in the past 100 years. The German cities show models of sewage fields, slaughter houses, public baths, market halls, methods of food control, and people's kitchens. There are also on view model clinics for mothers and infants, and for tuberculous, venereal, and alcoholic patients. A special department is devoted to superstition and quackery, where the advertisements are compared with their alleged results. This department is amusingly and cleverly arranged, and since it evidently attracts the public it provides valuable propaganda against quackery. Other departments are concerned with gymnastics, industrial hygiene, hygiene of dwellings, food, and clothes. A big hall is devoted to the modern hospital. There are models of operation theatres, sick rooms, hospital wards, isolation wards, hospital dispensaries, and laboratories. Another part of the exhibition is devoted to the hygiene of infants, where the measures used in the attempt to decrease infant mortality are demonstrated. Special exhibits illustrate the combat against tuberculosis and against cancer. Of the foreign government exhibits that of Russia is the largest. It is designed to show the great progress of hygiene since the institution of the Soviet system. The other governments have exhibited diagrams and statistical tables concerning hygiene in their respective countries. The nucleus of the exhibition is the permanent museum, and its aim is to popularise hygiene not by dull lectures and statistical records, but by vivid illustrations. The exhibition will be open until November and is well worth visiting.

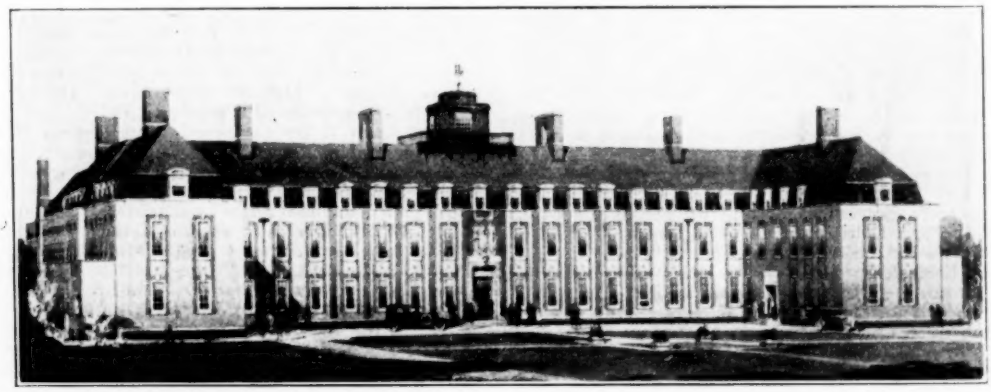
EXPERIMENT ON PATIENTS.

The German Health Council, a representative body connected with the Health Office, composed both of doctors and laymen, has been deliberating on experiments on patients. The Council holds that such experiments are necessary for medical progress, but must be made in accordance with medical ethics. Experiments which might as well be done on animals, and experiments on moribund patients without the intention of saving life, are to be avoided. Powerful new remedies should not be used for human beings until tested on animals, and then only by agreement with the patient. Experiment in hospitals should only be made by the chief doctor or under his personal control. In medical publications the respect due to the person of the patient must never be neglected, and the responsibility of medical men in this regard must be explained to medical students.

MARGATE AND DISTRICT GENERAL HOSPITAL.

THE work of the old Cottage Hospital at Margate has been transferred to a new building in St. Peter's-road, and the hospital was officially opened by Prince and Princess Arthur of Connaught on July 3rd. The new institution, which is to be run by the same staff as the old, is placed on a fine open site facing St. Peter's-road. On the left of the entrance hall are the offices and on the right the X ray department. The latter department was placed here in order to be equally convenient for in-patients and out-patients and also to allow room for expansion. All the wards and the theatre have been fitted with plugs so that patients can have treatment with X rays in bed. The radiological machinery is in a room beneath the filming room, so that no noise is heard in the latter. In the north-west wing is the out-patients' department with consulting, surgery, and ophthalmic rooms and a theatre. The wards are on the south side, away from the road and facing a country view. There is accommodation for 14 paying patients in wards containing one, two, or three beds. On the first floor there are two large surgical wards, two maternity rooms with vita-glass windows, and a children's ward with eight cots. Staff rooms are in the centre of the building and nurses' and maids' bedrooms, bathrooms, and lavatories on the third floor. The operating suite is on the first floor of the north-west wing. The hospital is heated by coke-fed boilers in the basement; these can be converted for oil-burning at a small cost if desired. The apparatus is a low-pressure hot water system and there is a minimum of unsightly drop-piping. The building is distinguished by a turret, from which a fine view of the surrounding country and sea is obtained. Precautions have been taken against breakdowns in the various supplies; gas stoves and gas lamps have been installed, and the beamless electric light in the theatre can be supplied with current from storage batteries. Every bed has a window facing south, or nearly south, its own electric light overhead, and a reading lamp on the locker.

The building and equipment cost £70,000; a sum of £57,000 has been subscribed, and a further £5000 was handed to the Prince in purses at the opening ceremony. The hospital thus needs another £8000 to be cleared of debt. The architects are Messrs. Adams, Holden and Pearson of London, and the general contractors Messrs. Reg. Elliott and Co., Ltd., of Margate.



The New Margate Hospital.

PUBLIC HEALTH SERVICES

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1929 statistics of eight districts of differing local government status and in various parts of the country.

Name of district and estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Youngchild (1–5 yr.) mortality.	Maternal mortality from childbirth.
Cambridge B. (60,730)	11·8	12·3	0·87	1·73	2·6	1·7	47/35	14	4·2
Barry U.D. and Port (39,010)	17·5	11·0	1·00	1·61	1·4	1·6	70/39	38	5·8
Darwen B. .. (37,780)	12·9	14·7	0·55	1·72	3·4	2·5	86/49	—	8·2
Spenborough U.D. .. (30,780)	14·3	14·6	0·58	1·36	3·1	3·3	79/25	47	4·5
Ramsgate B. (31,440)	17·4	13·7*	0·80	2·20	2·1	1·8	75/35	22	9·1
Weston-super-Mare U.D. (27,620)	8·6	13·5	0·61	2·17	1·6	2·6	71/42†	—	0·0
Taunton B. (24,860)	15·9	12·7	0·84	1·45	2·0	2·4	52/30	12	7·5
Hereford R.D. (13,060)	15·5	13·9	0·92	1·68	2·1	2·9	104/49	—	5·0

Stillbirths per 100 live births: Cambridge (notified), 4·3, Barry 4·8, Darwen 5·7, Spenborough 4·7, Ramsgate 2·9, Weston-super-Mare 3·8, Taunton 3·0.

* Standardised 11·4. † Death during first week only.

Cambridge.

Dr. Andrew J. Laird points out that owing to the rise in the death-rate and the fall in the birth-rate, there was in 1929 for the first time no natural increase in the population of Cambridge. The increased death-rate was mainly of older people during the exceptionally severe weather of the first quarter and attributed to influenza, diseases of the heart, and bronchitis. Cambridge did not, however, suffer from influenza in 1929 so badly as many other places. The deaths numbered 38, which may be compared with 56 in 1927, 40 in 1922, 127 in 1918, and 33 in 1919. The infant mortality was exceptionally low after the first month. Thus out of 34 infant deaths, 25 occurred in the first four weeks, and only nine during the rest of the year. The number of notifications of diphtheria (240) was the highest on record. The type was not severe, and the case fatality was 4·1 per cent. The old policy of awaiting the result of bacteriological examination before giving antitoxin is gradually disappearing. Some progress has been made with immunisation. The boys in a residential institution were the first to be done, and a special clinic was opened towards the end of the year. The only case of small-pox was a stewardess on the s.s. *Tuscania*. She had a mild attack, the contacts were revaccinated, and no secondary cases occurred. Dr. Laird estimates that from 400 to 500 more houses are needed. The health committee has been authorised to build 70 to meet the needs of certain families—viz., those from houses for which a closing order has been made; those from houses requiring substantial repairs; and those with large families who are unable to pay the rent of a municipal house. Thirty of these houses have been erected, and are occupied, and a site has been bought for the remaining 40. The Cambridge Housing Society has also built a third group of houses (making a total of 61) for the accommodation of large families.

Caravan dwellings are on the increase, and it is suggested that Cambridge may have to adopt the Birmingham scheme of setting aside parking places, provided with all necessary requirements.

Barry.

Dr. Percy W. Kent says the chief occupation of the inhabitants is at the docks in connexion with the export of coal. The continued slump in trade has led to prolonged unemployment and an increase in casual labour, but so far the health of the community has not been affected. The municipal hospital is at present only used for accidents and surgical cases. The question of its extension has been under consideration for some years. Medical, children's, and maternity wards are needed, and also accommodation for massage and electrical treatment. During 1929 the Barry Chamber of Trade gave £1000 for the purchase of a new X ray apparatus. The water-supply of the district has been unsatisfactory for several years, but it is hoped that the new supply from Taff Fechan will be available during 1930. The problem of inadequate housing still exists, and there is overcrowding in several parts of the district. Dr. Kent points out that local authorities select the best tenants, although they are in a better position than private owners to supervise undesirable tenants. He regrets that the suggestion of the sanitary inspector some years ago that a certain part of the housing estate should be set aside for such tenants was not acted upon. Until some such experiment is tried the problem of the undesirable tenant will not be solved. Dr. Kent also points out that the charges for subtenancies should be controlled. Several tenants receive more rent from subtenants than they themselves pay for the whole house. Efforts are made to encourage clean milk production, but some of the producers do not cooperate. During the year one cowkeeper was fined for failing to keep the flanks and udders of his cows clean.

The work of the port sanitary service has been greatly altered during recent years by deratisation. The inspection of vessels of from 2000 to 5000 tons and the estimation of the rat population takes a sanitary inspector and a rat-catcher from two to three hours, and the fumigation occupies another three hours. There were about two black rats to three brown rats amongst those destroyed on ships during 1929.

Darwen.

Dr. James Robertson says the water is mainly a soft moorland supply. The water in the reservoir is treated with sodium carbonate before sand filtration and lime-stone is placed in the bed of the brook. Analysis of the tap water shows only gr. 1/300 of lead per gallon. The rainfall for the year was about 57 inches, and in November nearly 11 inches. Dr. Robertson says that the river should be covered in at various points and its bed paved. During the year a large amount of refuse and debris had to be removed from it by corporation workmen. Owing to the lack of small and low-rented houses there is some overcrowding, mainly from the occupation of houses by more than one family. The joint town-planning scheme for N.E. Lancashire has just been completed, and it is now proposed that the area be divided into two groups with statutory powers. Out of 90 observations the time-limit for black smoke was exceeded in six instances. The limit allowed is five minutes per hour for one, two, or three boilers, and seven for four or more. Owing to the unprecedented depression in the cotton trade a number of mills have been permanently closed, several have been closed for long periods, and others are on part-time. This has resulted in a very great diminution in the

town's consumption of coal and may have to some extent accounted for the increase in the sunshine registered. Thus the record for 1929 was 1409·8 hours as compared with a 20-years' average of 1146·4 hours. There is no local maternity home or children's hospital, but the poor-law infirmary situated in Blackburn admits maternity and other cases from Darwen. This hospital also has an orthopædic unit.

Spenborough.

Dr. L. Pickering-Pick reports that the deaths were 44 more than the average for the previous five years. One peculiarity of the returns was the large excess of female deaths—viz., 273 out of 451. The deaths under one year were 50 per cent. greater, and those from 1 to 25 years exactly double those in 1928. The increased mortality from respiratory diseases affected the two extremes of life. The infant mortality-rate of Spenborough was ten higher than the rate for the 157 smaller towns, but the neonatal deaths were five fewer than in the previous year. There is no maternity hospital in the district, but the municipal hospital of Bradford and the Heckmondwike and Batley maternity homes receive Spenborough women on payment. The isolation hospital arrangements are unusual—Spenborough was formed by the amalgamation of Cleckheaton, Liversedge, and Gomersal, and the cases from each of these three districts still go to different hospitals. There is no general hospital in the district, and the hospitals at Bradford, Dewsbury, Batley, and Leeds are utilised. There were 82 cases of small-pox with no deaths. The cases constituted two small epidemics.

Dr. Hilda A. Channon (part-time) conducts an antenatal clinic. In 1928, 93 cases made 251 attendances, and in 1929, 111 cases made 325 attendances. The mothers attend well on the whole, she says, and are beginning to introduce their friends, but the standard of general physique among the pregnant women of the district is depressingly low. Free dental treatment has been provided, but only a few can be persuaded to avail themselves of it, and several motners state that their dentist has refused to extract teeth on learning that they were pregnant.

Ramsgate.

Dr. W. J. Bannister states that the remaining 20 of the 360 houses on the council's Whitehall estate have been completed, but that there is still a demand for the non-parlour house at a low rental. Through the generosity of Dame J. Stancombe-Wills a maternity ward of eight beds, costing about £10,000, is being added to the general hospital. Dr. Bannister has advocated the institution of an open-air school for some years, and says there are many children who would benefit greatly therefrom. As the borough will not face the cost, he suggests that provision be made for open-air education for special classes of children throughout the year in connexion with the proposed new centrally situated school. This appears to be an opportunity for the "Derbyshire" type of school. The council's station for the sterilisation of cockles from Pegwell Bay has been discontinued, and those engaged in the trade have been notified that they must provide their own means of sterilisation to the approval of the medical officer of health. The hours of sunshine were 1897·8, and the inches of rainfall 18·79.

Weston-super-Mare.

Dr. A. E. Remmett Weaver, who was appointed on the resignation of Dr. John Wallace, also performs duties for the county council's school medical service. In commenting on the increased infant mortality, he attributes this to an exceptional number of accidents at birth. Of the 17 deaths of infants, ten occurred from a few hours to a week after birth, and in four instances inquests were necessary.

For years the isolation hospital has been regarded as inadequate. At a conference with the county council it was decided that Weston must either build a new hospital, enlarge the present one, or join a combination scheme. Accordingly a scheme has been approved for the addition to the present hospital of a 12-bed scarlet fever pavilion, a 10-bed observation block, an administrative block, and a new laundry and mortuary. The maternity and child welfare work is mainly organised by a voluntary association. There are no maternity beds in the district, but when the extension of the general hospital was planned, a ladies' committee raised £6500 for the provision of maternity wards. The old X ray department has been converted into maternity wards, which have not yet been opened, as no funds are available for administration and maintenance. Excellent water has been available from a spring in the limestone at Banwell since 1924. The water is pumped to a tower on Worlebury Hill and another lower level reservoir. The village of Banwell is to have a piped water-supply and a drainage scheme contemporaneously. As these schemes may threaten the purity of the spring, Weston's water-supply is being chlorinated. In the eastern part of the district, the only direction in which Weston can expand, there is an ancient system of land drainage by rhynes. Complaints of flooding have arisen owing to the inability of the rhynes to carry off surface water during heavy rains. An endeavour is being made to adjust this matter. The council erected 20 houses during the year. The hours of bright sunshine were 1790·5, as compared with an average of 1455·3 for the past ten years. The heaviest fall for one "rainfall day" was 2·99 inches on August 3rd.

Taunton.

Dr. John Allen reports that the water had to be cut off from 6 P.M. to 7 A.M. from April 29th onwards, and that it was not found possible to resume a continuous supply until Dec. 10th, after the heavy rainfall. A plant for treating the water with chlorine was installed in February. The rainfall on the watershed during 1929 was 41·6 inches, but 27·7 inches fell during the last quarter. Steps are being taken to increase the present sources of water-supply.

During September and October a special survey was made of all the houses in the town which were without through ventilation. The survey gave a total of 771 houses of this type, with rents varying from 2*s.* 6*d.* to 6*s.* a week. Most of these houses are arranged in courts. There is no inside sink or water-supply, only a tap and gully in the court. Coal and refuse are stored in a space under the stairs, and there is no ventilated food store. Sixty-six of the houses are classed as much below the condition of the remainder on account of marked lack of light and air, serious dampness, infestation by vermin or dilapidation. The shortage of houses prevents closing orders from being made, and many of the tenants cannot pay more than 6*s.* a week. At the time of the survey only 12 of these houses were unoccupied. The total houses in the borough in 1921 were 5376, so that about one in seven is of the type mentioned in the survey. Amongst other needs mentioned by Dr. Allen are a proper dustbin for each house, better drinking water facilities in the schools, and less primitive methods of retailing milk.

Hereford.

Dr. R. Wood-Power's district includes 39 parishes completely surrounding the city of Hereford, and has an area of 65,669 acres. In most of the parishes, shallow wells or springs provide the water-supply, and most of the "dip" wells are not protected, as they might be, from surface pollution. Dr. Wood-Power regrets that more advantage is not taken of the city's supply in all the parishes surrounding it. There were 21 notifications of diphtheria in nine parishes. Ten of the cases occurred in one house under unsatisfactory home conditions. This large family has now been provided with a "council" house. The council has formulated a scheme for

assisting owners under the Housing (Rural Workers) Act, 1926, but no applications were received during 1929. Some 2500 hop-pickers came from outside the county, chiefly from South Wales and Staffordshire, to 22 farms in the district. As few as six went to one farm, and as many as 700 to another. Much greater regard for the welfare of the pickers is shown than formerly. Some farms have canteens, and fresh meat and fish are obtained by the periodical visits of tradesmen.

MENTAL HOSPITAL REPORTS.

THE 116th annual report of the GLASGOW ROYAL ASYLUM records that there were 536 patients in hospital at the end of 1929, 155 of them being private cases. There were 21 more voluntary than certified cases among the 156 admissions. The recovery-rate was 34·5 per cent. and the death-rate 8·9 per cent. The medical superintendent pleads for the establishment of a psychiatric institute similar to that of New York. The asylum is soon likely to have a new charter to enable it to change its name to one more consonant with modern ideas. Wireless has now been installed throughout the hospital and has been a great boon. The occupational therapist submits a special report showing the success achieved in her department. The dental surgeon reports the total of 252 attendances and 244 extractions under local anæsthesia. There is a full consulting staff, but as yet no means of treatment by hydro- and electro-therapy.

The KINGSEAT MENTAL HOSPITAL at ABERDEEN had 701 certified patients on the register at the end of last year, and 15 voluntary cases were admitted during the year. No less than 11 of the admissions were suffering from general paralysis and all were too feeble for malarial treatment. Some improvement was obtained in two cases from graduated injections of sodium nucleate. Aberdeen has done little for its mental defectives, and 12 adult cases were admitted to the mental hospital during 1929. Despite these difficulties, the institution showed a recovery-rate of 31·4 per cent. and a death-rate of only 8·8 per cent. The question of the appointment of a dentist is under consideration, and the visiting commissioner urges the advisability of occupational therapy on a wide scale. The medical superintendent pleads for some way of keeping the senile case out of the general ward, possibly in a bungalow type of hospital. A veranda and solarium have been added to the Maudsley Parole Villa. Many patients work on the farm and take a keen interest in it. Four of the staff obtained their R.M.P.A. certificates during the year.

The MONMOUTHSHIRE MENTAL HOSPITAL at ABERGAVENNY had 1244 patients on the register at the end of last year. The recovery-rate was 27·5 per cent. and the death-rate 6·5 per cent. There was an outbreak of typhoid in the spring, and after prolonged efforts a chronic carrier was isolated in March, but there seems to be another undetected, as two more cases occurred in December. A small X ray apparatus has been installed. The visiting surgeon has been called in twice and has operated once, and the dental surgeon has visited weekly. Full parole has been allowed to 46 men, while 78 men and 25 women have had liberty within the estate. During the year eight nurses passed the final examination for the nursing certificate.

The COUNTY AND CITY OF WORCESTER MENTAL HOSPITAL at POWICK had 1047 patients in the hospital at the end of last year. The recovery-rate was 38·7 per cent. and the death-rate 5·6 per cent.; post-mortem examinations were made in 71·7 per cent. of the fatal cases. The general health was good, but there was one case of scarlet fever. The dentist examines all patients on admission and supplies treatment when necessary. The committee are considering the installation of electricity and the reorganisation of the sewage disposal. Six men have had parole beyond the estate and 33 men and 8 women within the grounds; two patients were allowed out on trial and two wards are administered on the open-door principle. The visiting commissioners wish that these privileges could be more widely extended. Five male and three female nurses obtained their R.M.P.A. certificates during the year.

The CHESHIRE COUNTY MENTAL HOSPITAL at PARKSIDE had 1303 patients on the register at the end of the year, and there has been a certain amount of overcrowding on the male side; this has been met by transferring 18 men to workhouses. The recovery-rate was 28·7 per cent. and the death-rate 7·47 per cent. The general health was satisfactory, apart from a severe epidemic of influenza in the spring. Of the 13 cases of general paralysis admitted, six were suitable for malarial treatment, with the result that three were discharged and one was considerably improved. Light treatment was given to 33 patients for mental illness and to 116 for physical reasons; 55 patients were treated with radiant heat, baths, sprays, and massage. The report is illustrated with photographs of a hammock fitted with a vita-glass canopy and of the hydrotherapy treatment rooms. In the occupational therapy department 76 women and 27 men are occupied in various handicrafts, while 52 men and 32 women were introduced to various games. A new room is to be added to this department shortly. The laboratory has undertaken the examination of specimens for the Macclesfield Town Council. The report includes notes by members of the staff on the treatment of varix by injection of quinine and urethane and the relation of the cause of death to the type of insanity. It is well known that cases of dementia præcox are particularly liable to tuberculosis; it was found that five out of 68 schizophrenics and 41 out of 67 melancholics died of heart disease and chronic nephritis. The paranoid and cycloid types predominate in the list of deaths from malignant growths, while the epileptic imbeciles succumb most easily to colitis and pneumonia. There is also a report from the laboratory showing that 1911 routine investigations were made and that a small outbreak of dysentery in June and four sporadic cases of typhoid caused a good deal of work. The Lange colloidal gold test has given consistently satisfactory results. Eight nurses and one attendant obtained the R.M.P.A. certificate, bringing the total to 48 nurses and 27 attendants.

The 101st report of THE LAWN, LINCOLN, omits the usual historical introduction, as this institution is now well known. The year's work shows a further increase in the number of admissions, these being 43 on an average number resident of 65, and for the first time the voluntary boarders outnumbered the certified patients (24 to 19). Of the certified cases the majority would have been suitable for admission under the new temporary treatment order proposed in the Mental Treatment Bill. The recovery-rate was 35·29 per cent.; it was 42·85 per cent. for females but none of the male admissions were recoverable cases. The general health was good, and there was no epidemic disease. A class in folk-dancing has proved a great success, especially for patients who lack spontaneous activity. Handicrafts of various kinds have been taken up during the year, and it is hoped before long to employ a full-time occupations officer. The new veranda attached to the admission and convalescent ward has enabled quiet borderline and convalescent cases to be treated separately in the open air under glass permeable to ultra-violet rays. The financial situation of this excellent institution is unfortunately constituting a serious problem, and very few patients can be received at rates less than the cost of £4 4*s*. per week. The visiting commissioner urges the governors to consider making a wide appeal for funds, as it would be a calamity if the amount of relief they afford had to be reduced. The hospital has no endowment and receives practically no support from voluntary contributions. It is to be hoped that Lincolnshire will soon realise the importance of early treatment in the only hospital in the county which

can receive voluntary boarders, and supply the financial help which will enable its charitable work to be extended.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 19TH, 1930.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 126 (last week 138); scarlet fever, 1817; diphtheria, 1221; enteric fever, 108; pneumonia, 563; puerperal fever, 35; puerperal pyrexia, 100; cerebro-spinal fever, 11; acute poliomyelitis, 13; acute polio-encephalitis, 4; encephalitis lethargica, 18; dysentery, 6; ophthalmia neonatorum, 120. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 22nd–23rd was as follows: Small-pox, 241 under treatment, 3 under observation; scarlet fever, 1762; diphtheria, 1991; enteric fever, 33; measles, 284; whooping-cough, 77; puerperal fever, 24 (plus 14 babies); encephalitis lethargica, 121; "other diseases," 18. At St. Margaret's Hospital there were 18 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there were no deaths from small-pox or enteric fever, 16 (1) from measles, 5 (2) from scarlet fever, 22 (2) from whooping-cough, 32 (9) from diphtheria, 39 (9) from diarrhœa and enteritis under two years, and 18 (2) from influenza. The figures in parentheses are those for London itself.

Six deaths from diphtheria were reported from Liverpool and four of the fatal cases of diarrhœa were at Manchester.

The number of stillbirths notified during the week was 327 (corresponding to a rate of 47 per 1000 births), including 57 in London.

OBITUARY

ALFRED BERTRAM SOLTAU, C.M.G., M.D., F.R.C.P. Lond., F.R.C.S. Eng.,

HON. PHYSICIAN TO H.M. THE KING.

WE regret to announce the death of Dr. Alfred Soltau, of Plymouth, which occurred on Saturday last, July 26th, in a London nursing home, at the age of 55.

Alfred Bertram Soltau was born in 1876, the eldest son of George Soltau, a nonconformist minister, who was for a time governor of Dr. Barnardo's Home, and then took charge of a mission church in Tasmania. The son received his early education in Tasmania, and returned to England for his medical training. He entered the school of the London Hospital, where he obtained a scholarship and where afterwards he obtained prizes and distinctions in many subjects, as well as being Anderson Scholar in Clinical Medicine. In the intermediate and final examination for the M.B. London he obtained first-class honours, and graduated in 1900, taking the diplomas of the Conjoint Board in the same year. In 1902 he proceeded to the M.D. and obtained the F.R.C.S. Eng. Deciding to practise in the country he returned to Plymouth, where his family had been well known for several generations; he was appointed honorary physician to the Devon and Cornwall Ear and Throat Hospital and later to the South Devon and East Cornwall Hospital, and was rapidly recognised as a leading practitioner in the district. He became president of the Plymouth Medical Society and of the St. John Ambulance Association for the area, and also of the local division of the B.M.A. He was a prominent citizen as well as a leading practitioner, for he took a keen interest in politics, being president of the Plymouth Conservative and Unionist Association at the meeting in the city of the National Unionist Conference, while his civic activities included membership of the Plymouth Borough Council (1919–25) and chairmanship of the Public Health Committee. These various duties would appear to have given enough work for a medical consultant, but Soltau added to them a practical participation in military medicine. He was one of those who apprehended that a great war would come, and believed in the need for the country to prepare for it. In 1905 he took a Commission in the Devon Volunteer Brigade Bearer Company, and he raised and became the first commanding officer of the 2nd Wessex Field Ambulance (T.F.).

In 1914 the war brought him to the fore. He had the honour and joy of going out to France in command of his ambulance. Both the ambulance and the commanding officer were tested severely, and survived with credit. Soltau's services were recognised by promotion in 1916 to the post of consulting physician to the First and Second Armies, which carried with it the rank of Colonel, A.M.S. He was one of the first consultant officers to be appointed from amongst those who had served in the forward area, and he was familiar with the plight of the various medical units, and able to view their needs and difficulties with sympathy. He realised that a consulting physician and consulting surgeon in the field has vast opportunities beyond the obvious duty of seeing and treating difficult cases, inasmuch as one of the most important functions of the medical service is to maintain the Army in health, and to return to duty as quickly as possible those soldiers suffering from minor maladies. In the difficult days of the autumn of 1917, when the fighting round Passchendaele was dying down, Soltau was consulting physician to an army which contained over half a million men, and in recognition of his activities, and especially because of work done for the gassed, he was appointed in 1918 consulting physician to the War Office and the Ministry of Pensions for gassed cases. He was mentioned in despatches four times; awarded the C.M.G., in 1916, C.B.E., 1919, the Croix de Guerre (France) in 1918, and created Commendador D'Ordre d'Aviz (Portugal) in 1919. In 1924 he was appointed honorary physician to His Majesty the King; A.D.M.S. 43rd (Wessex) Division in 1922, and in 1927 honorary colonel, R.A.M.C., 43rd Wessex Division (T.F.). He was a clinician and interested in all things medical, and not a writer, but his publications include the Section on Gas Warfare in the Official Medical History of the War, and he was joint author of the Ministry of Pensions' Notes on Certain Diseases of the War. In 1919 he took the M.R.C.P. Lond., and was elected to the Fellowship in 1925.

In 1903 he married Edith Mary, eldest daughter of W. E. Watts, of Plymouth, by whom he had one son, George Richard Bertram, serving in the West Yorkshire Regiment, and one daughter. Dr. Soltau died after a long illness on July 26th, and was buried at Hendon Park Cemetery, Mill Hill, on July 30th.

JOHN STEVENS, M.D., F.R.C.P. Edin.

Dr. John Stevens, who died at Edinburgh on July 23rd, was one of the best known practitioners of the city. He graduated at Edinburgh with first-class honours in 1884, and received the gold medal for his M.D. thesis three years later. He became resident physician at the Royal Infirmary, and was admitted a Fellow of the Royal College of Physicians in 1894. He was early associated with the Edinburgh Medical Guild, of which he was honorary secretary and treasurer, and he held strong opinions on the status of practitioners. His interest in these matters led him into active work for the Edinburgh branch of the British Medical Association, and he became a member of the Scottish Committee and a representative on the Council of the Association. Tenacious but considerate in argument, he carried much weight among his colleagues, and his earnest enthusiasm gained their respect. His presence will be much missed at the deliberations of the Council and of the Representative Body of the B.M.A.

THOMAS OUTTERSON WOOD, M.D. Durh., F.R.C.P. & S. Edin., M.R.C.P. Lond.

Dr. Outterson Wood, whose death was announced in THE LANCET last week at the advanced age of 88, died at Torquay, where he had lived for some years after retirement from practice.

Thomas Outterson Wood was born at East Rainton, Durham, in 1843, the son of a father with the same name. He received his early education at Houghton-le-Spring, and entered the Newcastle School of Medicine as one of the first students. He finished his medical education at St. Bartholomew's Hospital and qualified in 1868 as M.R.C.S. He returned to Newcastle as house surgeon to the infirmary, but an opening having occurred for a resident at a private asylum nearby, he resolved to practice in the special branch of psychiatry which already had attraction for him. In course of time he became physician-superintendent to the Dunston Lodge Asylum, where his first appointment had been obtained, and while there he took the F.R.C.S. and the M.D. Durh., acquiring later the M.R.C.P. Lond., and being elected F.R.C.P. Edin. While at Dunston Lodge he was appointed lecturer in mental diseases and examiner in medical jurisprudence at Durham University, but a few years later he moved to Barming Heath, to take the post of assistant medical officer at the Kent asylum. Then he was appointed by the Commissioners in Lunacy to be medical superintendent at the Isle of Man asylum, which post he held until he started consulting practice in London.

His wide experience soon secured an appointment for him at the West End Hospital for Diseases of the Nervous System, as well as at the St. George's and St. James's Dispensary, while he also served on the Boards of Management of the Fenstanton private mental hospital, and at Bailbrook House, Bath. In 1905 he was elected President of the Medico-Psychological Association of Great Britain and Ireland, a due recognition of many years of able and accomplished work, in several sides of which he was an acknowledged authority. He showed this also in his writings, though they were not numerous. He was the author of the article on the "Law and Practice of Lunacy" in Allbutt and Rolleston's System of Medicine, and of the article in Tuke's Dictionary of Psychological Medicine on "Lunacy Law," and he arranged for the use of medical practitioners a résumé of the Lunacy Act of 1889, which was a distinctly serviceable production. Dr. Wood retired from practice 15 years ago, when he elected consulting physician to the West End Hospital and the St. George's and St. James's Dispensary. To his learning and experience he added, as factors in his professional success, the qualities of kindness and sympathy, with the advantage of a fine presence.

He married 60 years ago Caroline Augusta Charlotte, daughter of Mr. Edward Potter, of Cramlington House, Northumberland, who predeceased him, and there was no issue.

HUGH MILLER, M.B. Glasg.

BY the death of Dr. Hugh Miller on July 22nd, at the age of 54, the Health Department for Scotland has lost a valuable officer. He was appointed by the late Scottish Board of Health as one of the district medical officers under the National Health Insurance Act, and he controlled the Dundee district. Such work demands professional skill, experience of practice, and aptitude for administration. Dr. Miller had all three. After graduating at Glasgow in 1899, he held a large number of local hospital appointments and studied in Berlin. His work as a general practitioner was done in Gloucestershire and at Hamilton, in Lanarkshire. During the war he held a captain's commission in the Royal Army Medical Corps and for a time was medical officer in charge of the Prisoners of War Hospital at Sidi Bishi. Afterwards he returned to Hamilton and became honorary secretary of the Hamilton local medical and panel committee and deputy chairman of the Scottish committee of the British Medical Association. Appointment as district medical officer followed, and in this capacity his tact and courtesy were happily combined with a high sense of professional duty. His influence was widely felt.

ALTON CRIPPLES' HOSPITAL.—On Founders' Day at Lord Mayor Treloar's Cripples' Hospital and College at Alton it was stated that the 365 beds are constantly in use, that at the college 50 boys are always in training, and that steady development has been made in orthopædic cases, though the majority of the children suffer from tuberculous disease of the bones and joints. Rebuilding, which will cost £100,000, has become imperative; half of this sum has yet to be obtained.

BIRMINGHAM HOSPITAL CENTRE.—The members of the Birmingham Hospital Saturday Fund, an integral part of the contributory scheme, have agreed to pay a levy of an extra penny a week for five years to hasten the completion of the new hospital centre. This five years' levy is estimated to produce over £350,000, and the scheme was strongly supported by the Lord Mayor on the ground that more than 1000 patients are waiting for admission to the two greater Birmingham hospitals.

DONATIONS AND BEQUESTS.—Mrs. Anne Charlotte Harrison, of Watford, who left £205,340, after considerable private bequests, left half of the residue of her estate equally between Watford District Hospital, the Hospital for Sick Children, Great Ormond-street, London, W.C., and the Royal Blind Pension Society of the United Kingdom.—Miss Louisa Susannah Tucker, of Seaton, Devon, among other bequests left £1500 to the Royal Devon and Exeter Hospital, £500 each to the West of England Eye Infirmary, the Sidmouth Cottage Hospital, the Axminster Cottage Hospital, and the Royal Midland Home for Incurables, Leamington; £200 each to the West of England Institution for the Instruction and Employment of the Blind, the National Institute for the Blind, and the Hospital for Sick Children, Great Ormond-street; and £100 each to the Devon and Exeter Dispensary for Sick Animals, the Royal Society for the Prevention of Cruelty to Animals, the Imperial Cancer Research Fund, Dr. Barnado's Homes, and St. Dunstan's Hostel for Blinded Sailors and Soldiers.

CORRESPONDENCE

THE TREATMENT OF PULMONARY TUBERCULOSIS IN SWITZERLAND.

To the Editor of THE LANCET.

SIR,—May I reply to some of the many surprising and misleading statements that appeared in an article "Reflections on the Treatment of Pulmonary Tuberculosis in Switzerland and at Home" by Dr. W. R. E. Harrison in THE LANCET of July 19th.

That Dr. Harrison has been peculiarly unhappy in his experience of Alpine resorts is regrettable, but that he should have published general conclusions from such limited experience is unfortunate. How many of the Swiss sanatoria Dr. Harrison has visited I do not know, but it is clear from his remarks regarding the average hours of sunshine, the number of hours that have to be spent indoors, the coldness of the ice rinks, the ratio of the sporting to the "curing" population, the shut-in character of the country, the impossibility of finding interesting and level walking, the deplorable monotony of the views and by many other remarks, that he would have done better before having embarked on such dogmatic generalisations to have visited a plateau such as is to be found at Montana.

Dr. Harrison confines his generalisations to Swiss sanatoria in Switzerland, but my experience in Montana for the past three years in a British institution have led me to different conclusions.

In Montana during six winter months the *average* hours of sunshine per day according to Sir Leonard Hill were 5·28, which figure is appreciably greater than that of any other "curing" station in Switzerland (Maurer and Billviller in "Das Klima der Schweiz" give as corresponding figures 4·08 for Arosa, 3·83 for Davos, and 3·63 for Leysin), and which greatly exceeds the 2·85 hours for Falmouth and 2·56 for Margate, given by Sir Leonard Hill. Montana is too sunny to rank among the first-class winter sports places and in consequence the great majority of its visitors are patients and their relatives or friends. Dr. Harrison's remark that "the interest and 'life' of these towns is almost entirely bound up with winter sports and the pleasures associated with hotel life" and that they are therefore unsuitable for "curing" does not apply in the case of Montana.

Although he acknowledges the "invigorating effect" of "the dry and sunny climate" and "the improved appearance" of people who have returned from a holiday in Switzerland, he would appear to minimise the importance of the same stimulus on patients. There is no doubt also that sunshine makes a much more pleasurable business of that valuable therapeutic agent, "air bathing." Sir Leonard Hill has supported many clinical observers by proving that the cool dry Alpine air has a very favourable effect on metabolism. (Much of his research was done at Montana.) The Alpine climate also permits of better conditions for "sun bathing" which, carefully supervised, can be used with safety and to the patient's advantage in a certain number of cases of pulmonary tuberculosis. Further, during the greater part of the winter both my "bed" and "up" cases spend as much as from seven to ten (not "five") hours a day outside and then return to rooms which, contrary to Dr. Harrison's experience, are freely ventilated, both day and night.

Since Montana is situate on an extensive plateau with a panoramic view stretching from the distant mountains above the Simplon in the East to Mont Blanc in the South-West, Dr. Harrison's description of the patient in Switzerland living "in a narrow valley" with "jagged mountain peaks crowding all round," likewise does not apply to this resort.

Under the heading "Occupation and Outlook," Dr. Harrison states that all the Swiss sanatoria are inferior to the English ones in their capacity to provide "cheerful health-giving interests," and he attributes this "defect" to "their being situated in the Alpine towns which cater for holiday-makers." Montana, however, as I have pointed out, is primarily a health resort. Both the scenery and the facilities for "outdoor nature study" compare favourably with England, and the climatic conditions are in every way suitable for patients to watch the skating and other sports.

Dr. Harrison tells us that "in Switzerland the prescribed daily exercise is limited to walking," which later he describes as a "dreary tramp." Now exercise in Switzerland must obviously vary according to the season. Walking, of course, is common to all seasons, and as in England is the most important form of exercise, but in winter a few selected cases are allowed to skate. In summer there are excursions in the country, putting, and fishing for those who are considered fit for such diversions. For indoor recreation there are bridge, chess, billiards, clock-golf, and other pastimes suited to the particular and individual need of the patient.

In the paragraph "Spring and Summer," Dr. Harrison makes the statement that "in June the weather may resemble an English February"—in reply to which I will merely point out that the official figure for the *average* daily sunshine for June of this year (by no means a record one) was 8·1 hours.

In conclusion, I feel that the truth regarding the therapeutic value of the Alpine climate lies somewhere between the extreme anti-Swiss feelings of Dr. Harrison on the one hand, and those of the super-Swiss enthusiasts on the other.

I am, Sir, yours faithfully,

HILARY ROCHE, M.D., M.R.C.P., T.D.D.,
Medical Superintendent of Montana Hall, the new British Sanatorium, Montana, Switzerland.

July 22nd, 1930.

To the Editor of THE LANCET.

SIR,—Dr. Harrison's reflections ought to be read by every general practitioner in the British Islands. I enclose the letter of a former assistant who has had a wide experience of home and Swiss sanatoria, and quote from it:—

"I quite agree with the article by Harrison . . . but I think I could put it a bit stronger. He talks about the monotony of looking at the same patch of snow from a balcony, but what about the people who have to look at the same patch of wall adorned by a mournful picture with a few words of German underneath? When the sun is shining you won't be allowed to have the window open on 'medical' grounds, the real reason being that the sun would fade the floorcloth. When the sun is not shining you won't be allowed to have the window open for fear the water would freeze and burst the pipes, and you are paying 4 guineas a week for the fresh air treatment!"

The above throws a bright sidelight on this Swiss industry. I think it was a strong sense of duty that caused Dr. Harrison to write what amounts to a

summary of what patients and friends have told me for many years. The severe winters are bracing for the strong, but highly dangerous to the weak. There is an absence of home comforts, home interests, home employment. It is difficult often to exercise in the open because of hills and snow, and graded exercise and work are specially difficult to arrange. It must be admitted that our own climate is superior to that of Switzerland in most respects. Dr. Harrison's final sentence is worthy of quotation: "It is a reproach to medical men that so many of these unfortunates should be allowed to die in a foreign land."

I am, Sir, yours faithfully,

R. S. McCLELLAND.

Llwynwern, Dowlais, July 28th, 1930.

THE USUAL VICTIM.

To the Editor of THE LANCET.

SIR,—It has recently been impressed on me that the gentle art of bilking the doctor can be applied with such finesse as to extort a reluctant admiration even from the victim.

Most practitioners of a few years' standing have discovered that among the growing army of the hard-up, the doctor is recognised as the person whose bills can safely be paid last, and who is the easiest to bilk—he is the usual victim. I was not aware until recently, however, how far the latter process can be carried out with the aid of expert backing from the law.

Last summer I undertook the care for a month of a colleague's case while he went on holiday. The patient's family insisted on specialist supervision, and the fees were agreed upon. After a respectable interval I sent in my bill, and as no notice was taken, repeated the process on several occasions. My last two communications were returned marked by the postal authorities "Gone away."

After a period for meditation I placed the matter in the hands of my solicitors. They were informed by the opposing solicitors that trade was in a very bad state, and that their clients could not possibly pay the amount (although they had been able to reside for the season in an expensive part of London). Encouraging my solicitors to persevere, they were successful in obtaining £10 on account. There was a lull after this for a time, and then hostilities recommenced on a grand scale by the taking out of a writ in the High Court of Justice by my solicitors for payment of the balance. The enemy countered by paying into Court the amount of the debt *less one-third* of the original total. That was a polite intimation that they challenged the amount of the fees. I was then left with the alternative of accepting the reduced amount or proving my case in Court—that the fees were reasonable, &c., which would have required the appearance of medical witnesses to speak of my standing, professional ability, and so on.

The technique was described by my solicitors' clerk as a "dirty trick," but is evidently quite legitimate in the eyes of the law. I may mention, in conclusion, that my colleague's bill was considerably larger than mine, and as he is a Fellow of the Royal College of Physicians, his chances of recovering his fees are somewhat tenuous. We may depend upon it that such experts in the gentle art are aware of the College's prohibition.

I am, Sir, yours faithfully,

FREDERICK DILLON, M.D.

Wimpole-street, W., July 22nd, 1930.

HYPOGLYCÆMIA AND SUPRARENAL TUMOUR.

To the Editor of THE LANCET.

SIR,—Your annotation on this subject (July 26th, p. 200) prompts me to say that quite recently I saw a case of Addison's disease with cerebral seizures remarkably like those due to overdosage with insulin, which I attributed to hypoglycæmia. I then came across a paper by G. Maranon (*Presse Méd.*, 1929, xxxvii, 1021), recording a low blood-sugar in 71 per cent. of his cases of Addison's disease, in which acidosis was also frequent. Cerebral seizures occurred in a number of the cases. He, too, attributes a large part, but not the whole of this to hypoglycæmia. It is interesting in view of the failure of intravenous injections of glucose to benefit the case described in your annotation, that Maranon found this procedure positively dangerous, producing a febrile reaction with serious collapse, and even death. Glucose by the mouth in doses of 25 g., three or four times a day, on the other hand, was distinctly helpful. The reason for this difference is not clear, but it is important to bear it in mind in the treatment of the hypoglycæmia of Addison's disease.

I might add, as you mention the occurrence of hypoglycæmia in necrosis of the liver, that Maranon has shown the existence of hepatic insufficiency in Addison's disease, and that I have seen striking improvement follow the administration of liver extract in this condition.

I am, Sir, yours faithfully,

W. LANGDON BROWN.

Cavendish-square, W., July 26th, 1930.

CONGENITAL ATRESIA OF THE ŒSOPHAGUS.

To the Editor of THE LANCET.

SIR,—I have lately had under observation a case resembling the one described by Dr. Polson in your issue of July 19th (p. 135).

A female child, a few hours old, was admitted to the Queen's Hospital for Children, Hackney-road, on July 16th, under the care of Dr. Helen Mackay. It was born at full term after an easy labour lasting two hours, weighed 8 lb., and appeared to be a strong healthy infant. On attempting to feed the child it became cyanosed and vomited. On admission to hospital it was dyspnœic, and was vomiting mucus; there was marked retraction of the intercostal spaces. The air passages were cleared as much as possible with a mucus catheter, and the general condition improved. The child became cyanosed and vomited whenever attempts were made to feed it. A radiogram showed an œsophageal pouch.

At autopsy atresia of the œsophagus was found at the level of the upper border of the sternum. The upper segment was dilated to form a sac, the lower was narrowed to form a cord, and was not patent. There was an opening ¼ in. in diameter in the trachea at the level of the bifurcation connecting with the lower segment of the œsophagus. There was complete absence of the septum ventriculorum, but no other congenital abnormality was found.

I am, Sir, yours faithfully,

C. B. SMITH, M.R.C.S.

Queen's Hospital for Children, London, E., July 23rd, 1930.

EOSINOPHILIA IN ASTHMA.

To the Editor of THE LANCET.

SIR,—In a report of the scientific meeting of the Asthma Research Council (THE LANCET, 1930, i., 1293) Dr. Marjorie Gillespie, in describing the eosinophil count in asthma, stated that the highest

recorded was 57 per cent. A case of asthma submitted to this laboratory for blood examination showed the following percentage of eosinophils.

May 2nd, 18	per cent.	.. Total white count,	20,400.
„ 12th, 15	„	.. „ „ „	16,400.
June 2nd, 73	„	.. „ „ „	20,100.
„ 6th, 78	„	.. „ „ „	Not done.
„ 16th, 71·5	„	.. „ „ „	„
„ 30th, 63·5	„	.. „ „ „	„

The possibility of helminth infestation adding to the eosinophilia was excluded by fæces examinations on three occasions. Eosinophilia were also present in the sputum. The patient was having attacks of asthma at irregular intervals, but the blood counts were not done during the attack.

I am, Sir, yours faithfully,

A. HOOD, M.B.,
Major, R.A.M.C., Assistant Director of Pathology, Southern Command.

Poona, India, July 7th, 1930.

CYCLICAL VOMITING.

To the Editor of THE LANCET.

SIR,—The writer of your annotation (July 26th, p. 201) emphasises the constancy with which hypoglycæmia is associated with attacks of this disorder. This has not been my experience. On the contrary, between attacks the blood-sugar is invariably normal, and it does not fall until the attack is well advanced and vomiting has been present for some time, and not always then. Hypoglycæmia in children does not commonly precede or initiate an attack of cyclical vomiting, probably because the glycogen reserves of the liver are never entirely exhausted. The blood-sugar may fall, of course, to a very low level after long-continued vomiting or other causes of starvation. Also there does not seem to be any evidence that hypoglycæmia occurs more frequently in "nervous" than in other children. The beneficial action of sugar in debilitated children would seem to be due to increasing the glycogen reserves, not the concentration of sugar in the blood. The evidence for these statements has been set forth in a recent paper by Dr. H. G. Close and myself in the *Archives of Disease in Childhood*, 1930, v., 149.

I am, Sir, yours faithfully,

London, W., July 28th, 1930. A. ARNOLD OSMAN.

A GENERAL MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—I find the leading article with this title in your pages last week a generous appreciation. There are many points in the scheme of the B.M.A. for a general medical service on which further comment might be forthcoming both *pro* and *con*; but I only wish to call attention to the fact that there is here propounded a system of service, and not one of those petty and partial local schemes that have been too often current in conversation. The scheme is one among other indications that at last the medical profession in all its divisions and subdivisions is a primary organ in maintaining a reasonably efficient social organisation. Now that the medical profession sees itself as a vast social instrument, the lay mind should be a little less patronising—less anxious to "keep the doctor in his place" as a mere adviser.

I am, Sir, yours faithfully,

July 30th, 1930. W. LESLIE MACKENZIE.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.

To the Editor of THE LANCET.

SIR,—I observe in your issue of to-day you state that last year 354 in-patients were admitted to this hospital, and that this number exceeded all previous totals. The fact is that 2055 in-patients were treated last year; the number of out-patients treated was 9253, and the number of out-patient attendances was 103,254. These figures exceed all previous totals, and do not include the patients treated at the various local clinics. There are now 470 beds in this hospital, including its country branch at Stanmore. I shall be grateful if you will correct the misapprehension which is likely to arise from the figures you publish this week.

I am, Sir, yours faithfully,

ARTHUR MORLEY,
Secretary.

Royal National Orthopædic Hospital, July 26th, 1930.

*** We regret the misprint.—ED. L.

THE TRANSFER OF APPOINTMENTS WITH THE PRACTICE.

To the Editor of THE LANCET.

SIR,—Doctors who may find it necessary to sell their practices owing to ill-health will be well advised to give some little attention to this letter, in connexion with the transfer of appointments recently under the Boards of Guardians. Without arguing the morality or justice of appointments being sold with the rest of a practice, the fact remains that in the past this custom has been usual in the vast majority of cases unless the purchaser has been quite an impossible man, and because as a gesture of loyalty and sympathy to a colleague whose health has broken down, the other doctors in the district have refrained even from applying for such posts.

Things would appear to have changed, in that I have recently been compelled to sell my practice owing to a breakdown in health, and the purchaser has not succeeded to the appointments I held under the Board of Guardians, in spite of the fact that he was officially appointed my deputy when I was granted a month's sick leave and that no complaints were made as to the zeal and efficiency he showed.

My own troubles at the moment are confined to the loss of £500 which I can ill afford, and are as nothing compared to the tragedy that has befallen the purchaser who had saved enough money as an assistant to pay a certain sum down and the rest by instalments, under the impression that he was buying an income that has supported a doctor and his family for 40 or 50 years. He now finds his income cut down by about two-fifths, and how he is going to live and pay off the balance of the purchase money I really don't know, because there can't be any scope for increase in a district that is already over-doctored and is suffering acutely from the competition of State medical services.

I am asking you to be good enough not to disclose my name and address for very obvious reasons, but I enclose my card.

I am, Sir, yours faithfully,

July 18th, 1930. DISAPPOINTED OPTIMIST.

PS.—And it is to be remembered that the State more or less agrees to the sale of a couple of thousand human bodies in the sale of panel practices, and I'm not sure that the State does not actually pay the cost of the notices sent out in such cases!

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

BILLS ADVANCED.

IN the House of Lords on Thursday, July 24th, the Adoption of Children (Scotland) and the Education (Scotland) Bills were read a second time. On Friday, July 25th, the Housing (No. 2) Bill was agreed to on Report.

On July 28th, in the House of Lords, the Housing (No. 2) Bill was read the third time and passed. The Education (Scotland) Bill and the Adoption of Children (Scotland) Bill passed through their remaining stages, and were read the third time and passed. On July 29th, in the House of Lords, the Housing (Scotland) Bill was read the third time and passed.

HOUSE OF LORDS.

WEDNESDAY, JULY 23RD.

Royal Veterinary College.

The Earl of HAREWOOD asked the Government if they had investigated the position of the Royal Veterinary College, and what steps they were prepared to take to maintain it; and moved for papers. He said that the College had reached a stage in its career when some action must be taken promptly or the Governors would have to take a step which would eventually lead to the closing of the College—namely, the refusal to accept new students. At present the expenditure of the College exceeded the income, and the buildings were in an irreparable state. During the past three years the Governors had raised £30,000 towards the building fund. The departmental committee which reported last year recommended that the freehold of the site at Camden Town should be purchased for £20,000; secondly, that £280,000 should be spent on erecting new buildings; and, thirdly, that £25,000 should be spent outside London for the purpose of providing a research laboratory affiliated with the College. The committee also recommended that the annual income of the College should be guaranteed at not less than £21,000. He had received a letter from Lord de la Warr stating that the conclusions of the Government—which he hoped were not fixed—were that the sum of £20,000 for the purchase of the freehold should be cancelled while extensive buildings should be erected on the leasehold site at a cost of £250,000 instead of £280,000, which the departmental committee considered was the absolute minimum. He (Lord Harewood) was very doubtful whether £250,000 would be sufficient for the purpose, but the Governors would be willing to consider the Government's offer on that point if they saw any reasonable prospect of securing £250,000 with which to build. The Government's offer was to give pound for pound for the £30,000 which the Governors had in hand, and provide £70,000 in addition. That made £130,000, and the Government added that when the sum collected by the Governors reached £200,000 they would be prepared to recommend to Parliament a further grant of £50,000. From what he knew of the condition of agriculture he scarcely thought that there was the slightest hope of getting that £70,000, and so sure did the chairman of the Governors and the treasurer feel on that point that they informed him that morning that at a meeting of the Governors next week they would recommend that the Governors should refuse the whole of the offer of the Government, because there was no hope of raising a sufficient sum to rebuild the College. They would have to refuse to admit further students into the College, but the actual closing of the College would take about four years, because the Governors were so far committed to the students already there not to close the College before their course of instruction had been definitely completed.

Lord ERNLE said it was a disgrace to the country that this College should be allowed to lapse into extinction. In Berlin the annual sum paid for veterinary science was £280,000, while here it was only £16,000. The College had a chance of becoming affiliated as one of the schools of the University of London, but the University could not be expected to accept a College whose buildings were hopelessly inadequate and whose finances were practically insolvent. Veterinary science was mixed up with the department of public health, and the progress of human pathology and animal pathology had gone hand in hand, as Pasteur and Koch had illustrated.

Earl DE LA WARR (Parliamentary Secretary to the Ministry of Agriculture) said that the offer which the Government made last August to the Governors of the College was that they would give pound for pound up to £100,000. The Governors felt that whether that was a reasonable offer or not, they would not be able to collect sufficient money to make up the sum of £280,000. He took it that what the noble lord would like would be that His Majesty's Government should take over the College completely, rebuild it at the expense of the State, and provide virtually all the maintenance expenses. That would be an entirely new principle in the relations of the State with what amounted to a University department. Hitherto the policy had been that education of university rank should be aided by Government grant, but that the Government did not take the responsibility of maintenance, which was primarily a matter for the governing body. The Government could not accept the view that the entire responsibility for veterinary education should ultimately fall upon the State; but in view of the special circumstances associated with the College the Government had gone up to an offer of 30*s*. per £1 raised. He suggested that the Governors should make an effort to raise the money required, and if they did so they would have all the assistance and encouragement that the Ministry of Agriculture and His Majesty's Government could give them.

After further appeals had been made to the Government by Lord PHILLIMORE, Earl BATHURST, Viscount BRENTFORD, and Lord DANESFORT to save the College,

Earl DE LA WARR said that he could not hold out any hope that the Government would reconsider their decision; but he suggested that Lord Harewood and his friends might have a conference with the Ministry of Agriculture before coming to a decision as to the future of the College.

The Earl of HAREWOOD said that he would see the chairman of the Governors and the treasurer and try to persuade them to take in, at any rate, one further lot of young students if he could hold out any hope that the Government would see them through the absolute expenses necessary for carrying on the course for the next year or two. He withdrew his motion for papers.

HOUSE OF COMMONS.

WEDNESDAY, JULY 23RD.

Naval Stokers and Tuberculosis.

Mr. MARKHAM asked the First Lord of the Admiralty if in view of the number of stokers invalided yearly out of the service with tuberculosis, he would set up a departmental committee to investigate the cause.—Mr. ALEXANDER replied: The question of tuberculosis in the Services was examined in 1928 by a joint medical services committee, and no useful purpose would be served by appointing a further committee. Methods of combating the disease are constantly under consideration. I may add that the incidence of tuberculosis among this branch of the engine room ratings is not considered to compare unfavourably with the incidence

in the Navy as a whole or with that of the urban civil population of England and Wales.

THURSDAY, JULY 24TH.

Accidents to Shop Assistants.

Mr. HOFFMAN asked the Home Secretary what steps he proposed to take, in view of the increasing number of accidents which occur, to protect from injury shop assistants employed in shops where bacon-cutting and other meat-cutting, sausage-making, coffee-roasting, and grinding machinery was in use to secure that first-aid outfits were available.—Mr. CLYNES replied: I have no statutory powers to intervene except in cases where the part of the premises in which the work is carried on constitutes a factory, but the position has been discussed with the National Federation of Meat Traders, who fully recognise the need for safeguards for meat-cutting and sausage-making machines, and have taken the matter up with their members on several occasions. In a few cases where the Factory Act applies the provisions of the Factory Act relating to fencing and first-aid have been applied. I am not aware of accidents from the other classes of machine mentioned, but if my hon. friend can furnish me with information I shall be glad to look further into the matter.

Artificial Sun-ray Treatment.

Mr. DAY asked the Minister of Health the number of centres approved by his department for the purpose of artificial sun-ray treatment; and how many applications had been made to his department by local authorities during the previous 12 months for the approval of similar centres.—Mr. GREENWOOD replied: 265 such centres had been approved by my department up to April 1st last. During the previous 12 months 14 applications were received from local authorities for approval of similar centres.

Slum Clearance Schemes.

Mr. DAY asked the Minister of Health the number of buildings acquired and demolished for slum clearance schemes since April 1st, 1925; how many new dwellings had been erected in connexion with slum clearance schemes over the same period; if he could give an approximate estimate of the number of persons rehoused in new dwellings, and any statistics of the number of persons still living in slum habitations.—Mr. GREENWOOD replied: The number of buildings acquired by local authorities in England and Wales since April 1st, 1925, in connexion with approved slum clearance schemes is approximately 10,700, and the number demolished approximately 9000. The number of new dwellings erected since the same date in connexion with such schemes is rather more than 9700, and it is estimated that some 48,000 persons occupy these new dwellings. Statistics on the point raised in the last part of the question are not available.

MONDAY, JULY 28TH.

India and British Medical Supplies.

Mr. GRAHAM WHITE asked the Secretary of State for India if he had any evidence as to the effect of the recent decision of the General Medical Council with regard to the rights of Indian medical graduates upon the volume of British trade with India in medicines and medical appliances.—Mr. WEDGWOOD BENN replied: I have no statistics of this trade in recent months. I was informed in April last that a boycott of these classes of British goods had been established in consequence of the decision of the General Medical Council, but in May I heard that this boycott was weakening, and that orders for British goods were being placed. I have received no later reports.

TUESDAY, JULY 29TH.

Poison Gas Experiments with Animals.

Mr. FREEMAN asked the Secretary of State for War what evidence he had, and how it was obtained since 1918, that experiments conducted at Porton and elsewhere of poison gases on living animals showed that these gases had the same effects on human beings.—Mr. SANDERS (Financial Secretary to the War Office) replied: My right hon. friend is definitely advised by his expert advisers that the results of the experiments are such as to leave no doubt that the methods of curative treatment of the effects of gas which those experiments suggest are applicable to human beings.

Supply of Medical Officers in the Services.

Dr. VERNON DAVIES asked the Under Secretary of State for Air if the supply of medical officers for that Service was satisfactory; and if any difficulty was experienced in recruiting officers for the service.—Mr. MONTAGUE replied: There is still some difficulty in obtaining the numbers of medical officers required. The question is one which is constantly engaging the attention of the medical authorities at the Air Ministry and of the Air Council.

Dr. VERNON DAVIES asked the Secretary of State for War the present position with regard to medical officers in the Army; if there were any signs of more satisfactory recruitment to this service; and the reasons for the present position.—Mr. SANDERS replied: The present shortage of regular Royal Army Medical Corps officers is approximately 140, and my right hon. friend is in consultation with the Army Medical Advisory Board as to the causes of this shortage and the possible remedies.

Dr. VERNON DAVIES asked the First Lord of the Admiralty what was the present position with regard to medical officers in the Navy; if there were any signs of more satisfactory recruitment to this service; and, if not, the reason for the present position.—Mr. AMMON (Parliamentary Secretary to the Admiralty) replied: I regret that the shortage of Naval medical officers still continues, and that there are no signs of more satisfactory recruitment. The question is under consideration by the Admiralty.

Infantile Paralysis in Scotland.

Mr. MARCUS asked the Secretary of State for Scotland the number of children under the age of 7 years who died of infantile paralysis during the year 1929; and whether, seeing that the high infantile mortality was largely due to the drinking of impure milk, what steps he proposed to take to ensure a pure milk-supply.—Mr. JOHNSTON replied: During the year 1929, nine children under the age of 7 years died of infantile paralysis in Scotland. As regards the second part of the question, my right hon. friend is advised that the high death-rate among infants is due in the main to causes that cannot be attributed to impure milk. He fully recognises, however, how important a pure milk-supply is to the health of children and of the community generally, and I can assure my hon. friend that the matter is one which is receiving the close attention of the Departments concerned. I am sending him a copy of a circular that the Department of Health for Scotland issued recently on this and other aspects of food administration.

Treatment for Functional Nervous Disorders.

Mr. MANDER asked the Minister of Health if he was aware that owing to the shortage of accommodation and treatment for persons suffering from functional nervous disorders, a large number of persons would have to be admitted to asylums and become chargeable to the State; and what action he proposed to take.—Mr. GREENWOOD replied: I am unable to agree that the shortage of the facilities to which the hon. Member refers is such as to result in the admission of a large number of persons to mental hospitals. I have already explained to the hon. Member that under the Mental Treatment Act local authorities (with whom, and not with the State, rests the financial responsibility for these patients), are given extensive powers to provide for the preventive treatment of incipient mental illness. The position under the Act has been fully explored in a two-days' conference with Visiting Committees, and I do not think that any further action could usefully be taken at present.

In the résumé of the debate in Committee of Supply on the vote for Health Administration in Scotland we regret that, through a mechanical error, the valuable contribution from Sir Robert Hamilton became attributed, mostly, to Sir John Gilmour.

A LEICESTER CHILDREN'S CONVALESCENT HOME.—On Monday last the first patients were admitted to the Roecliffe Manor Convalescent Home, near Leicester, which has been bought and adapted by the Leicester and County Hospital Saturday Society. It contains 50 beds for boys and girls between 3 and 14 years. Since its foundation in 1903 the society has raised £633,000, of which Leicester Infirmary has received £402,000; the remainder has been spent on convalescent treatment.

MANCHESTER TUBERCULOSIS DISPENSARY.—Judgment was given on July 22nd by Mr. Justice Maughan in the Chancery Division in the action of the proprietor of the Rivoli Cinema against the Manchester Corporation that the corporation had no power to build a tuberculosis dispensary on a site opposite the infirmary and bounded by Oxford-road, Denmark-road, and Aberdeen-street. It had been an open space for many years. The corporation had previously obtained the approval of the Ministry of Health to the building of the dispensary. His lordship held that no public right of way had been acquired over the land, and held that the approval of the Ministry of Health had given the corporation authority to use the land for the purpose which had been approved.

MEDICAL NEWS

University of London.

At recent examinations the following candidates were successful:—

M.D.

Branch I, Medicine.—R. G. Anderson, St. Bart.'s Hosp; J. R. Blazé, Ceylon Med. Coll. and Univ. Coll. Hosp.; P. E. J. Cutting, St. Bart.'s Hosp.; Hari Das, Univ. Coll. Hosp.; T. A. Davies (University Medal), St. Thomas's Hosp.; R. E. Ford, London Hosp.; L. W. Hale, Univ. Coll. Hosp.; S. W. Hardwick, St. Bart.'s Hosp.; J. C. Hawksley, Univ. Coll. Hosp.; E. G. Housden, St. Thomas's Hosp.; C. A. Keele, Middlesex Hosp.; C. W. Marshall, Guy's Hosp.; S. P. Meadows, Univ. of Liverpool and St. Thomas's Hosp.; A. J. Morland, Univ. Coll. Hosp. and Univ. of Lausanne; R. H. Morley, Univ. of Leeds; Thomas Morton, St. Thomas's Hosp.; A. M. Richards, Univ. Coll. Hosp.; Gwladys V. Smallpeice, London (R.F.H.) Sch. of Med. for Women; Emrys Williams, St. Thomas's Hosp.; and William Yeoman, Univ. Coll. Hosp.

Branch II, Pathology.—K. T. Gajjar, Univ. Coll. Hosp.; and Dorothy S. Russell (University Medal), London Hosp.

Branch IV, Midwifery and Diseases of Women.—W. M. Brown, Guy's Hosp.; Elizabeth J. Carpenter, London (R.F.H.) Sch. of Med. for Women; G. M. FitzGibbon, St. Thomas's Hosp.; E. E. D. Gray and E. H. Roche, Guy's Hosp.; Iris V. I. Ward, London (R.F.H.) Sch. of Med. for Women; and Jane C. Williams, St. Mary's Hosp.

Branch VI, Tropical Medicine.—Frank Marsh, Guy's Hosp.

M.S.

Branch I, Surgery.—A. E. de Chazal, Univ. Coll. Hosp.; K. W. Heritage, London Hosp.; and Ivor Lewis, Univ. Coll. Hosp.

University of Edinburgh.

At a graduation ceremonial on July 23rd the following degrees were conferred:—

M.D.—J. R. Dogra,**† R. O. Eaton,* W. C. Fothergill,† J. S. Fulton,*** Anne Gibson, O. K. G. Guyer, C. I. Irvine-Jones, J. P. S. Jamieson, John Lowe, J. E. Maccabe, A. A. S. M'Donald, Bessie R. Mackenzie, F. G. Macnair, J. C. Moir,*** David Pottinger,† A. L. K. Rankin,* F. E. Reynolds,*** J. B. Rolt, D. R. Thapar, Mary Turton (*née* Martin), William Waddell, and H. E. Y. White.

Ch.M.—A. S. Fry.

The degrees of M.B. and Ch.B. were conferred on the candidates whose names were given on p. 221 of THE LANCET last week (with the exception of W. R. de Faria) and on Margaret L. Mackay. The following diplomas were also granted:—

Diploma in Psychiatry.—W. J. Raitt.†

Diploma in Radiology.—J. S. Fulton, Y. N. Krishnamoorty,† S. K. Montgomery,† K. R. Speeding,† J. C. Tainsh, and A. G. C. Taylor.†

*** Gold Medal for Thesis. ** Highly commended for Thesis.
* Commended for Thesis. † In absentia.

The Cameron Prize in practical therapeutics has been awarded to Dr. George Richards Minot and Dr. William Parry Murphy "in recognition of their discovery of the treatment of pernicious anæmia by the administration of liver."

University of Manchester.

Mr. J. P. Buckley has been appointed lecturer in surgical pathology; Mr. Harry Platt and Mr. D. McKay Sutherland lecturers in applied anatomy; and Mr. A. Graham Bryce lecturer in regional surgery.

Dr. F. H. Lacey, Mr. D. P. Sutherland, and Dr. William Susman have been appointed members of the Board of the Faculty of Medicine.

University of Sydney.

The Senate has announced that the Rockefeller Foundation has decided to contribute £100,000 to provide laboratory facilities for the departments of medicine, surgery, pathology, and bacteriology. The recent establishment of full-time Bosch chairs in medicine, surgery, and bacteriology has brought the medical school of the University within the scope of the activities of the Foundation. It is the intention of the university to build a new block close to the Royal Prince Alfred Hospital. The present medical school will continue to house the departments of anatomy, physiology, pharmacy, and dentistry. The new block will take in the departments of medicine, surgery, pathology, and bacteriology as well as departments which have already been endowed. An account of the new school of Public Health and Tropical Medicine at Sydney lately appeared in THE LANCET (1930, i., 1195).

Society of Medical Officers of Health.

The annual Neech prize for the best paper read before a branch or group of this society has been awarded for the session 1928–29 to Dr. J. Sim Wallace for his address on the Prevention of Dental Caries, published in *Public Health* in February, 1929. The award has been delayed to allow publication of all the papers submitted for consideration by the assessors.

Fellowship of Medicine and Post-Graduate Medical Association.

From August 5th to 30th an afternoon and evening course, consisting of clinical and cystoscopic demonstrations, will be given at the All Saints' Hospital, Vauxhall Bridge-road. Demonstrations will be given on both male and female patients. Particulars of operations may be had from the hospital. An all-day course in Diseases of the Chest will be held at the Brompton Hospital from August 11th to 16th. In September there will be a course in Diseases of Children at the Queen's Hospital from the 1st to the 13th, and one in Medicine, Surgery, and the Specialties at the Westminster Hospital from the 15th to the 27th. Copies of all syllabuses and a programme for the winter months may be had from the secretary of the Fellowship at 1, Wimpole-street, London, W. 1. A provisional list of special courses for 1931 is now available.

Founder's Day at Epsom College.

On July 26th Lord Burnham presented prizes to 79 successful boys and happily refrained from offering to the rest the usual consolatory phrases. His eloquent speech was largely in praise of Lord Rosebery, his predecessor, as president of the school, and in appreciation of the achievements and ideals of Epsom College. The headmaster, Mr. A. Powell, reported a gratifying series of academic and athletic successes among past and present Epsomians, and announced the decision of the Council to proceed with the building of a new sanatorium which is to cost £25,000 and to be a model of its kind. The existing sanatorium will be converted into a house for 40 boys, bringing the total accommodation up to 450. Dr. Raymond Crawfurd, as chairman of the Council, thanked Lord Burnham for coming, and gave an account of distinguished holders of the office of president since the College was founded in 1855. The entertainments offered to parents and guests included the annual cricket match against a team of Old Epsomians, an assault-at-arms, and in the evening a spirited performance of "The Gondoliers" by the school choral society.

A Military Medical Museum.

On July 26th, at the Duke of York's Headquarters, Chelsea, Lieut.-General H. B. Fawcus, Director-General of Medical Services, opened a museum which has been instituted by the officers of the 47th Division, R.A.M.C. (T.A.), for the purpose of instructing the men in anatomy, physiology, hygiene, field sanitation, first-aid, and army nursing. General Fawcus and Mrs. Fawcus were received by the A.D.M.S., Lieut.-Colonel L. D. Bailey, and after an inspection of the guard of honour provided by the R.A.M.C. units of the Division the General was presented with a key with which he formally opened the museum. General Fawcus said that the officers of the Division had been endeavouring to attract a better type of man into the ranks, and had realised that in so doing they must provide for him an intellectual interest and a means of learning his work thoroughly and intelligently. He expressed great appreciation of the work already done in connexion with the establishment of the museum, the collection of specimens, models, and diagrams, and observed that the officers of this Division were evidently not men who let grass grow under their feet. He congratulated them on their activities, and foresaw for the museum a wide and ever-increasing usefulness. Colonel Bailey thanked General Fawcus for coming to open the museum; it was one more proof of the interest he had always shown in the activities of the Territorials. The museum was in its infancy, but already very precious to the R.A.M.C. units of the 47th. He thanked the Territorial Association for bearing the expense of decorating the room, and numerous donors for the gifts of furniture, specimens, models, and the like. He announced that regular weekly lectures would be given in the museum by experts in the various subjects relevant to the R.A.M.C. training. Captain H. A. C. Gregory seconded the vote of thanks.

London School of Hygiene and Tropical Medicine.

Every second year, in memory of the late Dr. Cowas Lalcaca, a silver medal is awarded to a student of this school for the best essay on clinical medicine and surgery in the tropics. The competition is open to any student who has obtained the school certificate. The next award will be made in the autumn of 1931.

"Hospital Ballots."

Under this title the Hospitals Automatic Ballot Association, Ltd., is inaugurating a system of competitions in aid of hospital funds by means of automatic machines. By placing a shilling in the machine an entry form for a competition, "simple tests of skill and judgment," will be delivered. Prizes amounting to £2000 will be given in each competition, the first of which will be in aid of the reconstruction fund of St. Bartholomew's Hospital. It is calculated that the expenses, including the rent of sites for the machines, will be 20 per cent. of the receipts, and after deducting from the remaining 80 per cent. the cost of the prizes and small expenses connected with them, the balance will be distributed to the hospitals. It is stated that 1000 automatic machines are at once to be distributed in and around London and the south-east of England; some are already in position. The trustees of the scheme are Field-Marshal Sir Claude Jacob, Sir Gordon Campbell, and Sir D'Arcy Power, and the judges of the competitions are Sir Francis Goodenough, Mr. Edgar Wallace, and Mr. Gilbert Frankau.

Reunion of War-blinded Masseurs.

Under the auspices of St. Dunstan's the annual luncheon and reunion of blinded soldier masseurs was held at the Langham Hotel, London, on July 25th. Captain Ian Fraser presided over a gathering which included nearly 70 masseurs and numerous representatives of the medical profession and public bodies. The chairman said that the Prince of Wales had heard with very great pleasure of the success attained by more than 100 blinded soldiers who had been trained as masseurs and medical electricians. The primary object of the luncheon was to do honour to the masseurs, who were an outstanding example of the success which St. Dunstan's men had achieved. The secondary purpose was to give an opportunity of referring to the medical profession in general. The St. Dunstan's family consisted of some 2000 men and 5000 wives and children, and the health of this large group had become a big responsibility. He wished to place on record their appreciation of the services of the medical profession and hospitals throughout the country. Nearly 2000 men had been blinded in the late war. Sir Arnold Lawson and Major A. W. Ormond had compiled statistics showing that in 41 per cent. of the cases blindness was due to wounds from high explosives or bombs, in 29 per cent. to bullet wounds, and 27 per cent. to non-traumatic causes, such as detachment of the retina, cataract, and optic atrophy, and the aggravation of conditions which might have been latent but for war service. Up and down the country these men required the help of the medical profession, and it was given generously.—Sir Thomas Horder, proposing the toast of Our Patients, spoke of his interest in physical therapy—"a series of ancillary methods of treating patients which begins with the human hand." It was common knowledge that the blind had a peculiar facility for massage. Some people were visualists, others were auditives, and he had no doubt that some were primarily tactualists. The blind in his audience were obviously auditive, but they were making themselves effective and skilled tactualists. In physical therapy he preferred simple to complex methods, but patients were impressed by machinery and there was a danger that the human hand would be put in the background. An enormous field lay open for progress in massage and manipulation. At the present time he thought there was, perhaps, too great a tendency to substitute so-called passive movement for active movement. No amount of massage or electrical stimulation had the same physiological value as a natural movement carried out by the patient under supervision and careful guidance. The moral effect of the masseur's work was tremendous, and his health and personality had a definite value apart from the treatment he gave with his hands. Coöperation with the doctor was essential, and in case of doubt about the value of treatment it was the masseur's duty to give his views to the medical man in charge of the case.—Mr. Edmund Toft, in proposing Sir Thomas's health, said that the masseurs' ambition was to prove themselves as worthy in the war against disease as in the war in which they lost their sight. They were dependent on the profession for the success of their work.—Sir Neville Pearson gave the toast of The Guests, coupled with the name of Mr. R. C. Elmslie, F.R.C.S., chairman of the Chartered Society of Medical Massage and Gymnastics, who responded.

Municipal Grant to Voluntary Hospital.

East Ham town council has decided to make a grant of £3000 per annum to East Ham Memorial Hospital on condition that certain services are provided and that the council has five representatives on the management committee and a medical representative on the medical committee.

Enlargement of London Temperance Hospital.

This institution in Hampstead-road, N.W., is being enlarged. A new wing is to be built for the pathological, electrical, massage, and sunlight departments, with additional accommodation for the nursing staff and private patients. This work has been made possible by the children, grandchildren, and great-grandchildren of the late Mr. and Mrs. Samuel Insull, who took an active part in the work of the hospital in its early days. The new building is consequently to be called the "Insull Memorial Extension."

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, August 4th, to SATURDAY, August 9th.—ALL SAINTS' HOSPITAL, Vauxhall Bridge-road, S.W., Afternoon and Evening Course of Clinical and Cystoscopic Demonstrations (Male and Female). Four weeks. Further particulars from the Fellowship of Medicine.

Appointments

BROWN, C. M., M.B., Ch.B. Glasg., has been appointed Tuberculosis Medical Officer for Hull.

FRASER, A. MACK., M.D., Ch.B. Aberd., D.P.H., Medical Officer of Health, Inverness.

MURPHY, J. C., L.R.C.P.I., L.R.C.S.I., Medical Officer, Terryglass Dispensary District, Tipperary.

SKENE, G. W. R., M.D., Ch.B. Edin., Vice-Chairman of the Willesden Hospital Council.

King's College Hospital: J. G. Y. BELL, M.B., F.R.C.S., Junior Urological Surgeon; F. GOLDBY, M.B., M.R.C.P., Assistant Pathologist.

Certifying Surgeons under the Factory and Workshop Acts: ANDREWS, H. A., L.R.C.P. Lond., M.R.C.S. (Tonbridge); MCLEISH, H., M.B., Ch.B. St. And. (Cupar, Fife).

Births, Marriages, and Deaths

BIRTHS.

FILMER.—On July 18th, at Wilbraham-place, S.W., the wife of Harold E. Filmer, M.R.C.S., L.R.C.P., of a daughter.

PENRY.—On July 13th, at Priory Dene, 33, West Cliff-road, Bournemouth, to Frances Phelps Penry, wife of John Penry, M.R.C.S., L.R.C.P.—a daughter.

MARRIAGES.

MCCAHON—WHIGHT.—On July 24th, at St. Olave's Woodberry Down, Albert Edward McCahon, M.B., Ch.B., of Stoke Newington (late of Kilrea, Ulster), to Kathleen, only daughter of Mr. and Mrs. Arthur Whight, of Allerton-road, Lordship Park.

PUDDY—BARBER.—On July 22nd, at Easthampstead Parish Church, Eric Ivimy Puddy, M.B., B.S., to Patience Elizabeth Barber, daughter of the late Percy Barber, of Charlton Court, Tetbury, Glos., and of Mrs. Lawrence Mitchell, of Bracknell, Berks.

DEATHS.

MASON.—On July 25th, at Portland-court, W., J. Wallis B. Mason, M.D., late of Osnaburgh-terrace, N.W., in his 77th year.

MASSON.—On July 27th, as the result of a motor accident, John Masson, M.D., aged 71.

MILLER.—At Ravelston-place, Edinburgh, Hugh Miller, M.B., Ch.B., Regional Medical Officer, Dundee, of Daylesford, Newport, Fife, late of Hamilton and Stow-on-the-Wold.

NIALL.—On July 23rd, Eugene Michael Niall, M.D., of Arlington-street, Piccadilly, S.W.

O'SULLIVAN.—On July 17th, at Kinsale, Ireland, Danie O'Sullivan, M.R.C.S., L.R.C.P., aged 60.

SOLTAU.—On July 26th, in London, Alfred Bertram Soltau, C.M.G., C.B.E., F.R.C.S., F.R.C.P., M.B., M.D., of Plymouth, in his 55th year.

WELLS.—On July 25th, at Castle Hill Lodge, Maidenhead, Charles Wells, M.D., after long illness, aged 81 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

DISTRIBUTION OF BLOOD GROUPS IN SOUTH AMERICAN INDIANS.

By GERALD GOLDEN, M.B. LOND.

L. and H. Hirszfeld [1] were the first to draw attention to the possible ethnological significance of the distribution of blood groups. They made numerous observations during the war among the many different nationalities represented in the Macedonian campaign. They found that the populations of Western Europe are characterised by a high proportion of groups II. and IV. (Moss), and a low frequency of group III. Negroes and many of the Asiatic races, on the other hand, show an almost equal proportion of groups II. and III., while some of the Eastern Asiatics show a preponderance of group III. From west to east there is a fairly steady decrease in group II. individuals and an increase of group III. Group I. is always a rare group, as it contains both agglutinogens, while group IV. is generally represented by between 30 and 50 per cent. A few typical figures are given :—

	I.	II.	III.	IV.
	Per cent.			
500 Englishmen	3	43	7	47
500 Germans	9	40	13	38
300 Russians (Moscow)	8	39	20	33
1000 Hindus	9	19	41	31
500 Negroes (Belgian Congo)	8	22	24	46

These observations led the Hirszfelds to suggest that there were in reality two main stocks of the human race, represented respectively by the agglutinogens A and B of groups II. and III. ; it was assumed that a great deal of intermarriage had taken place, accounting thus for the representation of all groups in every race. This hypothesis led to much research to find out whether the inheritance of group properties were indeed so exact as to be of racial significance. The results of these investigations have led to a general belief that the agglutinogens are racially characteristic. Historical evidence has in several instances born testimony to the soundness of the hypothesis.

Verzar and Weszeczky [2] have examined the group distribution in three quite distinct ethnical nuclei of population in Hungary. These include German colonies dating back to the beginning of the eighteenth century, the Magyars, whose origin was the Urals, and who seem to be related racially to the Turks, and finally the Tziganes coming from India. The comparison between each group of Hungarians and the races from which they sprang shows how the serum characteristics have been maintained.

	I.	II.	III.	IV.
	Per cent.			
German colonists	3	43	13	41
Magyars	12	38	19	31
Tziganes	6	21	39	34
Germans	9	40	13	38
Turks	7	38	19	36
Hindus	9	19	41	31

Several other instances are recorded which show evidence of a similar nature. On the other hand, it is not easy to understand the marked difference between the groups among Hindus and the Western European races, between which, on other grounds, there seems to be an historical kinship.

Since the Hirszfelds announced their hypothesis, observations have been made among the red Indian survivors of North America. Whereas the white population of the United States shows figures almost identical with those of Western Europe, the Indians show a strikingly different distribution.

The results recorded are as follows:—

	I.	II.	III.	IV.
	Per cent.			
1000 U.S.A. whites (Snyder [3])	3	42	10	45
1134 Red Indians ,,	1	16	4	79

The Esquimaux and some of the Indians of the Argentine Chaco show a similarly great preponderance of group IV. These figures have led Bernstein [4] to make the suggestion that there are three rather than two distinct stocks, represented by groups II., III. and IV. Thus the characteristic of this further racial stock is the absence of agglutinogens.

Blood Groups of a Brazilian Indian Tribe.

My own observations have been made on Brazilian Indians belonging to the Caraja tribe. Although the total number of blood examinations made, including controls, does not much exceed 100, the results are of interest because they are, I believe, the first records of the kind among the million and a half odd Indians in Brazil, and because they differ markedly from any other figures so far published.

The method used was a modification of Beth-Vincent's, which affords the simplest means of identifying the agglutinogens, and is the most easy to carry out.

Two stock sera are required, belonging to groups II. and III. These should contain a reasonably high titre of the agglutinins B and A, which respectively characterise these groups. A drop of each serum is placed separately on a glass slide or porcelain dish, and a drop of the blood to be examined is added to each. If agglutination occurs it can be readily detected by the naked eye as a red precipitate-like brick-dust, which takes the place of the homogeneous red mixture. With very rare exceptions this change occurs within less than a minute, and is quite obvious. Additional certainty may be obtained by using the microscope. Under the low power, the agglutinated mixture shows the red corpuscles heaped together in irregular dense masses, which are quite different from the rouleaux formation occasionally assumed by the corpuscles in any blood which is allowed to stand.

In obtaining the figures given below, Beth-Vincent's method was modified as regards the proportion of blood to stock serum. Instead of adding a drop of serum to a drop of blood, the end of a thin glass rod was used to transfer a smear of blood from the pricked finger to the serum. In this way the mixture showed a proportion of blood to serum approximately between 1 : 10 and 1 : 5 instead of equal parts. This is a decided advantage, because there is very much less chance of mistaking rouleaux formation for agglutination when the blood is well diluted.

Stock sera were obtained by the kindness of Dr. Vital Brasil, whose name is associated with much important work in immunology.

Sixty-one observations were made among the Caraja Indians, and though the method is simple, they were the product of more effort and patience than might be imagined. The Carajas can only be reached after a journey from the coast of a thousand miles overland by rail and automobile to the point of embarkation on the river Araguaya, followed by a 400 miles trip down stream by canoe. Though their tribe probably does not number more than 800 in all, it is composed of tiny villages scattered over the course of the Araguaya for a distance of 500 miles. Once arrived among them, the difficulties are but begun. It is only after a great deal of palaver, and a great many demonstrations on his comrades, that the inquisitive white man is allowed to draw the drop of Indian blood. The first to submit to this new form of torture were always a few old widows who looked hungrily at the big bricks of sugar offered as a reward to the brave. They thought any risk worth running for so substantial an addition to their miserable ration. When it was seen that they survived the ordeal so well, children came forward, and finally a few of the timid young warriors submitted too.

The results showed that of the 61 Indians:—

3 (5%) belonged to group I.
3 (5%) ,, ,, II.
31 (51%) ,, ,, III.
24 (39%) ,, ,, IV.

As a control, 43 persons of Brazilian nationality were examined in a town some 500 miles distant from the country inhabited by the Carajas Indians. Like most Brazilian towns of the interior, its population is a more or less intimate mixture of black and white. The figures obtained are as follows:—

21 (49%) belonged to group II.
3 (7%) ,, ,, III.
19 (44%) ,, ,, IV.
No group I. individuals were found.

Considering the above observations, it is at once evident that the number of Indians examined is insufficient to serve as a basis for any exact statement of the distribution of the blood groups. On the other hand, the preponderance of the groups III. and IV. is sufficiently overwhelming to show that these two groups are characteristic of the tribe. Further, it should be noted that the 43 controls give figures very closely resembling those quoted by J. Montenegro [5] for 120 Brazilians living in the State of Sao Paulo. Montenegro's figures are: group I., 3 per cent.; group II., 41 per cent.; group III. 9 per cent. and group IV., 47 per cent. 1685 cases examined by Duarte [6] in the State of Bahia showed: group I., 12 per cent.; group II., 30 per cent.; group III., 18 per cent.; and group IV., 39 per cent. The large negro element in Bahia makes the figures approximate more closely than those of other Brazilian States to the figures already quoted for the Belgian Congo.

Comment.

In the figures for the Caraja Indians there are two points worthy of special note. In the first place, there is no record of any other race showing so high a preponderance of group III. individuals. The Hindus, already mentioned, show 41 per cent. group III. Even in their figures, however, there is not such a disparity between groups II. and III. as among the Carajas. Even allowing for errors due to the small numbers examined, this disparity is very striking. The second point is the wide difference between the figures of the Carajas and those of the Red Indians of North America. Unfortunately, the only other figure available for South American Indians is that of S. Mazza and J. Franke,[7] who found 83 per cent. of group IV. in the inhabitants of the Argentine Chaco (quoted by Lattes [8]).

The Carajas are a tribe of river Indians living in a part of Brazil which is practically destitute of settlers. They do not appear either to have made war with the latter or to have entered into any close relations with them. Their attitude is friendly, but reserved, and the instances of intermarriage between Carajas and settlers are extremely rare. On all sides they are surrounded by other more or less savage tribes. Their language and the customs of these Indians have led to the opinion that they do not belong to the same ethnological group as the Tupy-Guarani races of Argentina and Paraguay. Observations made among the Carajas from the serological standpoint lend further support to this view. Although it is still much too early to draw conclusions, it is reasonable to suggest that the Carajas are descended from a mixture of two stocks—the Eastern Asiatic characterised by group III., and the ancestors of the Red Indians of North America, who are very largely group IV. individuals. The well-known disinclination of Indian people to mix with other races perhaps accounts for the much more uneven distribution of groups among them than among European and Asiatic races. It will be noted that the Carajas exemplify these peculiarities.

It is to be expected that fresh light will be thrown on all these matters as figures are obtained for many more of the tribes of Brazil and South America in general. Perhaps then, and then only, the problems of racial origins among these primitive peoples will be fully understood.

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6. Duarte: Thèse de Bahia, 1926.
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THE ANTISCORBUTIC VITAMIN IN APPLES.

THE apple has not been considered in the past as a good source of the scurvy preventing vitamin. In a report [1] just issued by the Medical Research Council, however, M. F. Bracewell, E. Hoyle, and S. S. Zilva describe very considerable differences in the antiscorbutic content of apples according to the variety. Of all the home grown and colonial varieties tested by them the English cooking apple known as Bramley's Seedling was found to be decidedly the most active. The relatively high activity of this apple is apparently one of its hereditary characteristics, and is not related in any way to the soil in which it is produced. The age of the tree or the conditions under which the apples are cultivated have no apparent influence on the amount of antiscorbutic vitamin in the fruit. The Dabinett, a cider variety, ranked next to Bramley's Seedling and Cox's Orange Pippin came third in the list in respect of antiscorbutic activity. Canadian dessert apples had almost the same activity as corresponding English varieties, whereas Australian and New Zealand apples were not as potent. The fall in the potency of the last-mentioned group is probably related to the increased time that elapsed between the picking and testing of the fruit. Little loss was found in the antiscorbutic activity of English grown apples during three months storage in air at 1° C. Storage in a mixture of carbon dioxide, nitrogen, and oxygen at 10° C. for the same period produced a definitely greater loss of activity. It was found that baking apples in their skins for 50 minutes till the flesh was quite soft scarcely affected their antiscorbutic potency. It is hoped that a continuation of experiments on these lines may throw further light on the physiological properties of the antiscorbutic vitamin, and even help to reveal its identity. Meanwhile, it is of some practical importance to have established the fact that relatively potent antiscorbutic apples can be produced.

THE PROFESSIONAL CLASSES AID COUNCIL.

THIS Council exists for the relief of distress among members of the professional classes, and its procedure is to avoid doles and give immediate pecuniary help when needed. The Council has just issued its ninth annual report which shows that its operations are continually increasing. During the year, May 1929 to April 1930, 1077 applications have been considered as against 920 last year, and financial assistance has been given to 239 families. 25 persons have received grants of clothing, and advice has been given to 277 applicants—this last being often an extremely valuable form of assistance. It is regrettable that the total income of the Council shows a drop of nearly 10 per cent., while the amount spent in relief has increased by nearly 7 per cent., and the Council plead for an increased donation list in view alike of past responsibilities and future activities. The fund justifies every request on its behalf, and the address of the Council is 251, Brompton-road, S.W.3.

[1] Med. Res. Council Special Rep. Ser., No. 146. The Anti-scurvy Vitamin in Apples. London, H.M. Stationery Office. 1930. Pp. 45. 9*d*.

IN THE MATTER OF AGE-LIMIT.

To the Editor of THE LANCET.

SIR,—The letter from "Ex-Temporary Civil Servant" in your current issue is timely. I, too, find all roads barred because I am aged 49 years; indeed, I see that a practitioner aged 27 to 30 years is, in your advertisements, considered to be experienced. My own experience is as follows: early successes and resident experience, honorary physician to two important hospitals, and post-graduate study under Sir James Mackenzie. On the outbreak of war, being in the colonies, I came to England at my own expense. I served in France in the front line in 1915–16. I was consulting physician on heart disease in Salonika, 1917–18; Chairman of the Special Medical Board for Civil Servants (Ministry of National Service) and Chairman of the Consulting Board at Chancery-lane; Staff Deputy Commissioner of Medical Services to the first decentralised Region of the Ministry of Pensions; Commissioner of Medical Services for Yorkshire (Ministry of Pensions), with final decision on medical matters, the control of 32 medical boards, many treatment clinics, and hospitals containing nearly 3000 beds, while my signature covered an expenditure of at least £3,000,000 per annum. I find myself now debarred from any work under the Government, under local authorities, and even privately, because I am too old.

I am, Sir, yours faithfully,

ANOTHER EX-TEMPORARY CIVIL SERVANT.

July 26th, 1930.

STERILISING WATER BY THE CATADYN METHOD OF KRAUSE.

About 50 years ago the Swiss biologist, Carl v. Nägeli, made the observation that micro-organisms died in water which was kept for several weeks on end in vessels of silver or copper. He could offer no explanation of this effect, as he was unable to detect the presence of any metal in solution and his experiments precluded the possibility of the germs having been killed by radiation. He called the phenomenon "oligodynamics," and after his death Dr. G. A. Krause, Munich, a physicist, and others, confirmed and extended his observations. The catalytic-dynamic properties of finely divided silver have been utilised in the "catadyn" method of sterilising water. The effect of minute quantities of the spongy metal distributed over porcelain rings, beads, or particles of sand on the living organisms in water has been accurately measured; in most instances the colon bacillus has been taken as the test organism. It is claimed that the filtrate also in some mysterious way acquires and retains the germicidal power originating in the materials of the catadyn process. Severe and prolonged critical tests have been applied and the evidence advanced is remarkably convincing. Before it can be applied on a commercial scale the question of expense of materials and containing vessels will require scrutiny, but a prima facie case has been made out for the consideration of the physicist, the biologist, and the public health expert. A demonstration of the method before an informed audience would seem to be the next step.

THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—The annual circular has been posted to each member of the medical profession. If the form has not been received, a duplicate will be sent on request. We shall be grateful for the return of the forms by an early post.—We are, Sir, yours faithfully,

J. AND A. CHURCHILL.

Gloucester-place, W., July 29th, 1930.

WESTBURY COTTAGE HOSPITAL.—The hospital is about to be rebuilt at a cost of £9500. There will be 20 beds, two of them in a private ward.

Vacancies

For further information refer to the advertisement columns.

Altrincham General Hospital, Cheshire.—Sen. H.S., and Jun. H.S. At rate of £150 and £120 respectively.
Barnsley, Beckett Hospital and Dispensary.—H.P. £140.
Barnstaple, North Devon Infirmary.—Res. M.O. At rate of £150.
Bath, Royal United Hospital.—Asst. H.S. At rate of £120.
Birmingham, City Hospital, Little Bromwich.—3rd and Jun. Asst. M.O.'s. £350 and £300 respectively.
Birmingham General Hospital.—Res. H.P. £70.
Birmingham, Midland Hospital, Easy-row.—H.S. £200.
Bradford, Royal Eye and Ear Hospital.—Jun. H.S. £150.
Brentwood, Essex, High Wood Hospital for Children.—Asst. M.O. £550.
Brighton, Royal Sussex County Hospital.—Cas. H.S. £120.
Cardiff, Welsh National School of Medicine.—Demonstrator in Pathology and Bacteriology. £250.
Chester County Mental Hospital.—Jun. Asst. M.O. £350.
Chesterfield and North Derbyshire Royal Hospital.—H.S. At rate of £100–£175.
Colchester, Essex County Hospital.—Asst. H.S. and Registrar. £120.
Croydon County Borough, P.H. Dept.—Asst. M.O.H. for Obstetrics. £600.
Derbyshire Royal Infirmary, Derby.—Ophth. H.S. £150.
Doncaster Royal Infirmary.—Three H.S.'s and one H.P. All at rate of £200.
Dudley, Guest Hospital and Eye Infirmary.—Asst. H.S. £150.
Durham County Council.—District Tuber. M.O. £500.
Durham County Sanatorium, Holywood Hall, Wolsingham.—Locum. Seven to 9 guineas weekly.
East Ham Memorial Hospital, Shrewsbury-road, E.—H.S. to Special Depts. and Cas. O. At rate of £120.
Glasgow Univ.—Samson Gemmell Chair of Medical Pædiatrics.
Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Res. Surg. O. Also H.P. At rate of £200 and £135 respectively.
Golden-square Throat, Nose and Ear Hospital, W.—H.S. £100.
Halifax Royal Infirmary.—3rd H.S. £125.
Hertford County Hospital.—H.P. At rate of £150.
Huddersfield Royal Infirmary.—H.S. At rate of £150.
Ilford, King George Hospital.—Res. M.O. £200.
Kilmarnock Infirmary, Ayrshire.—Res. M.O. £140.
Lancaster, County Mental Hospital.—Temporary Asst. M.O. Seven guineas weekly.
Manchester, Royal Infirmary, Roby-street.—Jun. H.S. and Cas. O. £100–£200. Also Four Technical Assts. for Clin. Lab. work. Each £200.
Manchester University.—Amy Henrietta Worswick Fellowship. £150.
Manchester, Victoria Memorial Jewish Hospital.—Hon. Surgeon.
Manitoba University.—Professor and Asst. Professor of Anatomy. $5000 and $3500 respectively.
Margate and District New General Hospital.—Res. M.O. £125.
Marseilles, Queen Alexandra Memorial Hospital.—Res. M.O. £250.
Merthyr General Hospital.—Res. H.S. At rate of £150.
Newark General Hospital.—Res. H.S. At rate of £175.
Nottingham, Hospital for Women.—H.S. At rate of £150.
Nottingham and Midland Eye Infirmary.—Res. H.S. £200.
Plymouth, South Devon and East Cornwall Hospital.—Hon. P. and Hon. Asst. P.
Queen's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.
Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.
Rochdale Infirmary and Dispensary.—Jun. H.S. £175.
Romford, Essex, Oldchurch Hospital.—Res. 2nd and 3rd Asst. M.O.'s. Each £250.
Saint Mark's Hospital for Cancer, Fistula, &c., City-road, E.C.—Res. Surg. O. At rate of £150.
Salford, Hope Hospital.—Res. Surg. O. £400.
Sheffield National Radium Centre.—Medico-Physicist. £600–£800.
Sheffield Royal Hospital.—Res. Anæsthetist. At rate of £80.
Sheffield Royal Infirmary.—H.S. At rate of £80.
Shrewsbury, Royal Salop Infirmary.—Res. H.S. At rate of £160.
Southampton Borough Hospital.—Res. M.O. £350.
Truro, Royal Cornwall Infirmary.—H.S. £170.
Walsall General Hospital.—Cas. H.S. At rate of £120.
Walsall Manor Hospital.—1st and 2nd Asst. M.O.'s. £200 and £150 respectively.
West Ham County Borough.—Deputy M.O.H. £850.
Willesden General Hospital, N.W.—Registrars.
Winchester, Royal Hampshire County Hospital.—Sen. Res. M.O. £200. Also H.S. £150.
Wolverhampton, Royal Hospital.—Cas. O. and Res. Anæsthetist. At rate of £125.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Somercotes (Lincolnshire); Pontesbury (Shropshire); and at Neath (Glamorganshire).

The Secretary of State for the Home Department gives notice of a vacancy for an Ophthalmic Referee under the Workmen's Compensation Act, for the districts of the County Courts in Circuit No. 1 and the districts in part of Circuit No. 2 (Northumberland and Durham). Applications should reach the Private Secretary, Home Office, Whitehall, London, S.W., not later than August 16th.

CASUALTIES AT SHEFFIELD ROYAL HOSPITAL.—The casualties dealt with at this institution during the first half of the present year numbered 11,156, an increase of 659 over the corresponding period of 1929. Traffic accidents numbered 574, of which 231 were caused by motor-cars and 190 by motor-cycles.